



INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

HIGH EFFICIENCY INDUSTRIAL AIRFOIL FANS

MODEL HAF



HAF High Efficiency Industrial Airfoil Fans

Model HAF fans from Twin City Fan & Blower employ a high efficiency non-overloading airfoil wheel in a ruggedly constructed fan housing. These fans are designed to handle clean air.

Arrangement 4 on Isolation Base



Typical Applications

- Product cooling
- Fluidizing systems
- Solvent recovery systems
- Moisture blow-off
- Forced draft
- Dryer applications
- Recirculation systems

Standard Features

- Heavy-gauge, all welded, high efficiency, non-overloading airfoil wheels are provided on all sizes and arrangements.
- Statically and dynamically balanced rotor assembly.
- Heavy duty self-aligning grease lubricated anti-friction pillow block bearings. See page 7 for sizes and types.
- Shaft turned ground, polished, and straightened to close tolerances.
- Heavy-gauge reinforced housing and bearing pedestal for vibration-free service.
- All arrangements include our standard shaft seal.
- Flanged inlet and outlet.
- Lifting lugs.

HAF High Efficiency Airfoil Wheel



Capabilities

- Air flow up to 160,000 CFM
- Wheel diameters from 25" to 82"
- High temperature construction to 600°F available

Class 30

- Suitable to 23,000 FPM tip speed
- Pressure to 30" w.g.

Class 40

- Suitable to 27,800 FPM tip speed
- Pressure to 40" w.g.

Class 50

- Suitable to 29,700 FPM tip speed
- Pressure to 50" w.g.

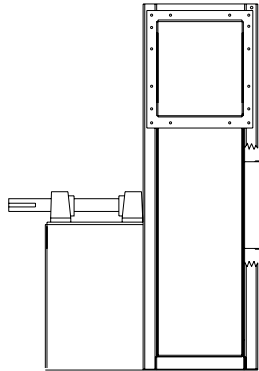


Arrangements

Arrangement 1

The usual choice for many V-belt drive applications. Wheel is overhung with two bearings on the base. The motor can be mounted in any of the four AMCA standard motor positions, w, x, y or z. Arrangement 1 is also available as a direct drive with a concrete motor pedestal by others.

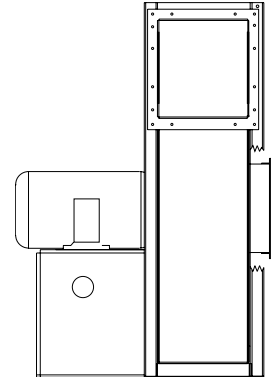
Arrangement 1



Arrangement 4

Arrangement 4 is available in direct drive only. The fan wheel is mounted directly on the motor shaft with the motor mounted on a pedestal. An Arrangement 4 design offers low maintenance as there are no fan bearings, fan shaft or drive parts to maintain.

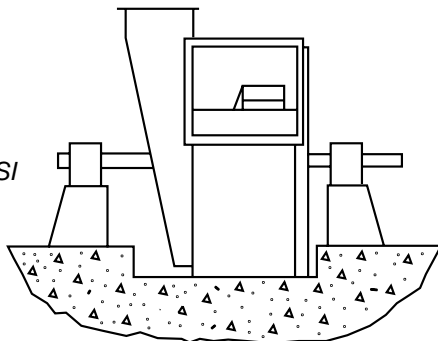
Arrangement 4



Arrangement 3SI

Single-width, single-inlet fan with integral inlet box and two independent bearing pedestals. The wheel is supported between two bearings.

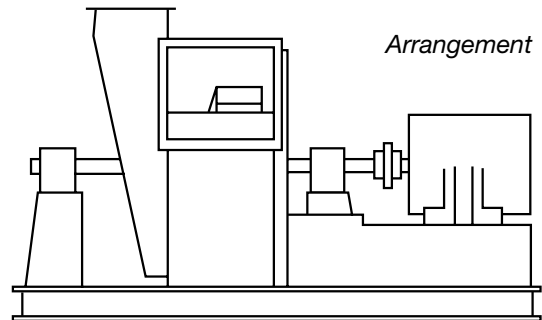
Arrangement 3SI



Arrangement 7SI

Direct coupled with a flexible coupling. A single-width, single-inlet fan with an integral inlet box and independent bearing pedestal and bearing/motor pedestal installed on a common base. The wheel is supported between two bearings.

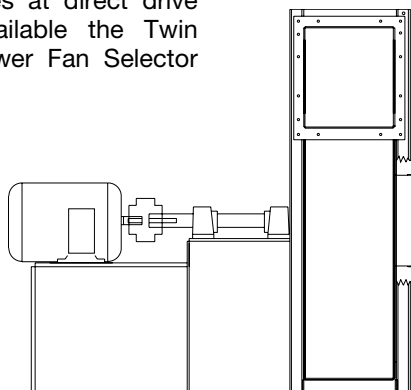
Arrangement 7SI



Arrangement 8

Direct coupled with a flexible coupling. Variations in wheel widths are available to match designed performance at motor speeds. Characteristic curves showing performances at direct drive speeds are available the Twin City Fan & Blower Fan Selector Program.

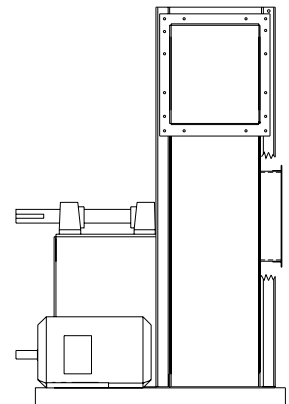
Arrangement 8



Arrangement 9F

Arrangement 9F uses an extended fan base to accommodate the motor for horizontal mounting, similar to an Arrangement 1 fan. Typically, the motor is mounted on the left side of the pedestal for CW rotation, and the right side for CCW rotation.

Arrangement 9F



Accessories

Inlet Box Dampers

Pre-spin design, heavy-duty construction. Provides a convenient and efficient means of reducing performance by spinning air in the direction of wheel rotation, resulting in power savings.

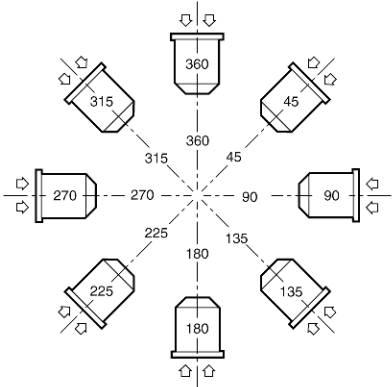
Evasé

Usually fabricated by customer as part of the ductwork. **Fan outlet must be expanded to equal evasé area shown in the catalog to obtain rated performance.** Same gauge as fan housing when purchased from the factory. (Do not use if ductwork is smaller than evasé.)

Inlet Boxes

Integral or detached type generously designed to minimize pressure drop.

Inlet Box Positions For Centrifugal Fans



INLET BOX POSITIONS AND DESCRIPTIONS	
45	Angular Down Intake
90	Horizontal Right Intake
135	Angular Up Intake
180	Bottom Up Intake
225	Angular Up Intake
270	Horizontal Left Intake
315	Angular Down Intake
360	Top Down Intake

Reference line is the Top Vertical Axis through center of fan shaft.

Position of inlet box and air entry to inlet box is determined from drive side of fan.

Position of inlet box is designated in degrees clockwise from Top Vertical Axis as shown.

Positions 135° to 225° in some cases interfere seriously with floor structure.

Temperature and Vibration Detectors

Thermocouples or RTDs can be installed on the bearings. Various types of vibration switches are also available.

Shaft and Bearing Guards

Solid sheet metal guards cover shaft and bearings and come with extended lube lines to a common point out either side of the guard. A guard spanning the shaft between the bearings is also available to provide easy access to bearings for lubrication and vibration monitoring.

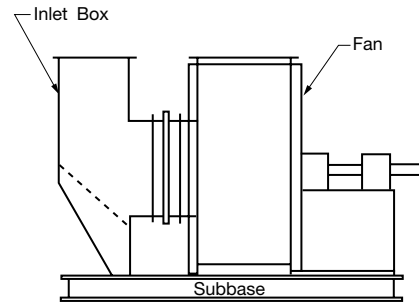
Drain

A 3/4" NPT threaded pipe coupling welded to the lowest point in the housing scroll. Plug is optional.

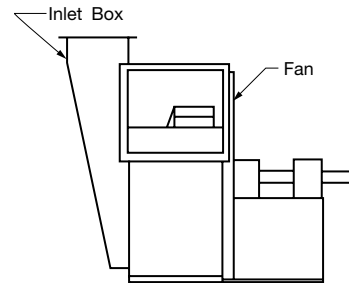
Inlet/Outlet Companion Flanges

Companion flanges are used for installing the fan to flexible sleeve connections, and are punched to match the fan's inlet or outlet.

Inlet Box Arrangements



Fan with detached inlet box (shown with optional sub base). Available on Arrangements 1, 4, 8 and 9F.



Fan with attached or integral inlet box. Available on Arrangements 1, 4, 8 and 9F. Standard on 3SI and 7SI.

Bolted or Raised Bolted Access Door

Bolted access door mounted flush, or raised to allow for insulation. Due to high operating pressures, a quick opening access door is not available.



Accessories

Oil Circulation Unit

Force feed lubrication units can be supplied for applications that require oil circulation for bearings.



External Variable Inlet Vanes

Works on the same principle as inlet box dampers. Only external bolt on type variable inlet vanes are available.



Outlet Dampers

The closing of the damper adds to the resistance that the fan is working against. This moves the operating point to the left of the initial rating point. The savings in horsepower depends on the relative position on the fan curve and is usually much less than offered by other methods. Outlet dampers are typically the least expensive option and should be considered when infrequent operation at lesser capacity is desired or when handling hot, humid or particulate laden air.

There are two types of outlet dampers: parallel blade and opposed blade.

Parallel blade dampers are recommended for systems where air volume is modulated between full-open to about 75% of open.

Opposed blade dampers cost about 10% more and are recommended for systems where volume is modulated over the entire range. Opposed blades reduce air volume in a closer relationship to the control arm movement.

Belt Guards

A belt guard protects personnel from the moving drive parts. Both standard and totally enclosed type guards are available.

Optional Construction

High Temperature Modifications

Air stream temperatures of 301-500°F are modified to use high temperature grease, expansion and non-expansion bearings and shaft cooler. TCF&B standard paint is suitable up to 500°F. Air stream temperatures of 501-600°F use the same construction as above with the addition of high temperature paint. Consult factory for applications above 600°F. Arrangement 4 fans are not suitable for applications above 150°F.



Vibration Isolation Bases

Heavy structural base for fan, motor and drive is designed for use with spring or rubber-in-shear type isolators. Use of flexible connectors at inlet and outlet is required on fans with isolators.

Spark Resistant Construction

Type 'C' spark resistant is available per AMCA standard 99-0401-86. Twin City Fan offers type 'C' suitable to 600°F. Consult factory where nonferrous metal other than aluminum is specified. Type 'B' is NOT available.

Unitary Base

A structural steel base provides common support to fan, motor, and drive including guards. This style of base is designed for use without isolators and requires adequate foundation integrity (provided and designed by others) for proper installation, and vibration free fan operation.

Split Housings

Size 220-330 fans are designed to permit wheel removal through the fan inlet. Sizes 360 and larger are standard with a pie-shaped split housing, which allows removal of the wheel and shaft without disconnecting the inner and outlet ductwork. A pie-split housing is required with fans utilizing an integral inlet box.

Performance Correction for Temperature and Altitude

The performance tables in this catalog are based on fans handling standard air at a density of 0.075 pound per cubic foot. This is equivalent to 70°F at sea level (29.92" Hg barometric pressure). When specified performance is at a density different than standard, it must be converted to the equivalent standard conditions before entering the performance tables. The equivalent standard conditions can be calculated by using the "Temperature and Altitude Correction Factors" from the table below.

Temperature and Altitude Correction Factors

AIR TEMP °F	ALTITUDE IN FEET ABOVE SEA LEVEL												
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	15000	20000
	BAROMETRIC PRESSURE IN INCHES OF MERCURY												
	29.92	28.86	27.82	26.82	25.84	24.90	23.98	23.09	22.22	21.39	20.58	16.89	13.75
70	1.000	0.964	0.930	0.896	0.864	0.832	0.801	0.772	0.743	0.714	0.688	0.564	0.460
100	0.946	0.912	0.880	0.848	0.818	0.787	0.758	0.730	0.703	0.676	0.651	0.534	0.435
150	0.869	0.838	0.808	0.770	0.751	0.723	0.696	0.671	0.646	0.620	0.598	0.490	0.400
200	0.803	0.774	0.747	0.720	0.694	0.668	0.643	0.620	0.596	0.573	0.552	0.453	0.360
250	0.747	0.720	0.694	0.669	0.645	0.622	0.598	0.576	0.555	0.533	0.514	0.421	0.344
300	0.697	0.672	0.648	0.624	0.604	0.580	0.558	0.538	0.518	0.498	0.480	0.393	0.321
350	0.654	0.631	0.608	0.586	0.565	0.544	0.524	0.505	0.486	0.467	0.450	0.369	0.301
400	0.616	0.594	0.573	0.552	0.532	0.513	0.493	0.476	0.458	0.440	0.424	0.347	0.283
450	0.582	0.561	0.542	0.522	0.503	0.484	0.466	0.449	0.433	0.416	0.401	0.328	0.268
500	0.552	0.532	0.513	0.495	0.477	0.459	0.442	0.426	0.410	0.394	0.380	0.311	0.254
550	0.525	0.506	0.488	0.470	0.454	0.437	0.421	0.405	0.390	0.375	0.361	0.296	0.242
600	0.500	0.482	0.469	0.448	0.432	0.416	0.400	0.386	0.372	0.352	0.344	0.282	0.230
650	0.477	0.460	0.444	0.427	0.412	0.397	0.382	0.368	0.354	0.341	0.328	0.269	0.219
700	0.457	0.441	0.425	0.410	0.395	0.380	0.366	0.353	0.340	0.326	0.315	0.258	0.210
800	0.420	0.404	0.389	0.375	0.362	0.350	0.336	0.323	0.311	0.300	0.290	0.237	0.193

Example:

Assume a Model HAF 540 to handle 82,000 CFM at 14" SP at 400°F at an altitude of 3,000 feet.

1. Knowing the operating conditions are 400°F and 3,000 feet altitude, the correction factor can be found in the table above to be 0.552.
2. Divide the operating SP by this factor:
 $14" \div 0.552 = 25.4" \text{ SP}$
 This is the equivalent SP at standard air density.

3. Enter the HAF 540 performance table with 82,000 CFM and 26" SP to find the fan RPM and BHP.

The fan RPM is 1389. The brake horsepower is 392.21 BHP at standard conditions (392.21 BHP is also referred to as "cold" or "starting" brake horsepower).

To determine the BHP at operating conditions, multiply the BHP at standard conditions by the correction factor from the table above ($392.21 \times 0.552 = 216.50$). The BHP at operating conditions is 216.50 BHP.

Derating Factors For High Temperature

TEMP. (°F)	DERATE FACTOR
70	1.00
200	0.96
300	0.94
400	0.92
500	0.90
600	0.87

Standard steel construction is suitable for use in gas temperatures to 600°F. When a fan operates at temperatures higher than 70°F, the maximum RPMs allowable from the table to the left must be adjusted according to the derating factor found in the table at the left.

Engineering Data

Safe Wheel RPM's for HAF at 70°F (Use for Temperature Derating of wheel only)

SIZE	WHEEL DIAMETER	CLASS 30	CLASS 40	CLASS 50
220	25.00	3410	4000	4367
240	27.50	3100	3700	3970
270	30.38	2806	3349	3594
300	33.50	2545	3037	3259
330	37.00	2304	2750	2951
360	46.00	2140	2590	2770
400	45.25	1939	2347	2510
450	50.60	1755	2124	2271
490	55.13	1592	1926	2060
540	61.00	1438	1741	1862
600	67.50	1300	1573	1800
660	74.25	1182	1430	1530
730	82.00	1070	1295	1385

Note: The maximum RPM's in Table above are to be used for temperature derating of wheel only. Refer to tables below for maximum fan RPM.

Fan RPM and HP limits for Belt Driven - Arr. 1

SIZE	CLASS 30		CLASS 40				CLASS 50			
	GREASE BEARINGS		GREASE BEARINGS		OIL BEARINGS †		GREASE BEARINGS		OIL BEARINGS †	
	MAX RPM	MAX HP	MAX RPM	MAX HP	MAX RPM	MAX HP	MAX RPM	MAX HP	MAX RPM	MAX HP
220	2700	40	2700	40	---	---	2700	40	---	---
240	2700	60	2700	60	---	---	2700	60	---	---
270	2700	100	2700	100	---	---	2700	100	---	---
300	2545	125	2700	150	---	---	2700	150	---	---
330	2304	150	2600	200	2700	250	2600	200	2700	250
360	2140	200	2590	250	---	---	2200	200	2700	400
400	1939	250	2200	300	2347	350	2200	350	2510	350
450	1755	300	2000	400	2124	500	2000	400	2271	500
490	1592	350	1926	450	---	---	2000	400	2060	400
540	1438	450	1741	500	---	---	1800	500	1862	500
600	1300	500	1573	500	---	---	1700	500	1800	500
660	1182	500	1430	500	---	---	1530	500	---	---
730	1070	500	1295	500	---	---	1385	500	---	---

Fan RPM and HP limits for Direct Driven - Arr. 8

SIZE	CLASS 30		CLASS 40		Class 50		
	GREASE BEARINGS		GREASE BEARINGS		GREASE BEARINGS		OIL BEARINGS †
	MAX RPM	MAX HP	MAX RPM	MAX HP	MAX RPM	MAX HP	MAX RPM
220	1980	15	3600	100	3600	100	---
240	1980	25	3600	150	3600	150	---
270	1980	40	3300	200	3600	250	---
300	1980	60	3000	250	3000	250	---
330	1980	100	1980	100	*3000	400	---
360	1980	200	1980	200	1980	200	---
400	1800	250	1980	300	1980	300	---
450	*1800	350	1980	500	1980	500	---
490	1500	350	1800	600	1980	600	---
540	*1500	600	1650	800	1800	1000	---
600	1200	500	1500	900	1700	1500	1800
660	*1200	800	1320	1000	1500	1500	---
730	900	500	1200	1250	1320	1750	---

Fans with brake horsepower (BHP) of over 1,000 requires independent bearing pedestals and motor mounted on a concrete pier, provided by others.

* Wheel requires percent width to reach speed.

† Bearings will require static oil lubrication.

See notes on page 17 for further details and other limitations.

Engineering Data

Fan RPM and HP Limits for Direct Driven - Arr. 4

SIZE	CLASS 30		CLASS 40		CLASS 50	
	MAX RPM	MAX HP	MAX RPM	MAX HP	MAX RPM	MAX HP
220	1800	10	3600	100	---	---
240	1800	20	3600	150	---	---
270	1800	30	---	---	3600	200
300	1800	50	---	---	---	---
330	1800	75	---	---	---	---
360	1800	150	---	---	---	---
400	1800	200	---	---	---	---
450	1800	300	---	---	---	---

Wheel Weights (Lbs.) & WR² (moment of inertia in lb-ft²)

SIZE	CLASS 30		CLASS 40		CLASS 50	
	WEIGHT	WR ²	WEIGHT	WR ²	WEIGHT	WR ²
220	109	56	109	56	115	61
240	125	80	125	80	133	87
270	154	120	159	123	162	128
300	182	179	184	178	192	190
330	235	268	235	267	156	286
360	272	396	301	447	315	469
400	416	707	427	726	451	799
450	495	1069	508	1096	526	1159
490	689	1791	728	1946	729	1930
540	1084	3322	1122	3462	1129	3547
600	1252	4936	1275	5053	1304	5663
660	1627	8147	1641	8037	1582	8325
730	1911	11979	1871	11918	1879	12154

Bare Fan Weights (Lbs.) - Arrangement 1

SIZE	CLASS 30	CLASS 40	CLASS 50
	WEIGHT	WEIGHT	WEIGHT
220	972	972	978
240	1154	1154	1162
270	1357	1362	1405
300	1610	1667	1675
330	2001	2049	2060
360	2437	2512	2562
400	3022	3098	3123
450	3680	3853	3872
490	4889	4999	5001
540	6267	6354	6443
600	7535	7650	7975
660	8940	9061	9250
730	10818	11259	11268

Bare Fan Weights (Lbs.) - Arrangement 8

SIZE	CLASS 30	CLASS 40	CLASS 50
	WEIGHT	WEIGHT	WEIGHT
220	1132	1550	1557
240	1358	1858	1866
270	1598	2244	2287
300	1985	2602	2610
330	2531	2558	3504
360	3459	3513	3538
400	4277	4285	4310
450	5008	5434	5453
490	6182	6602	6552
540	8036	9347	10100
600	9372	11214	C.F.
660	12397	C.F.	C.F.
730	13225	C.F.	C.F.

C.F. - Consult Factory

Bare Fan Weights (Lbs.) - Arrangement 4

SIZE	CLASS 30	CLASS 40	CLASS 50
	WEIGHT	WEIGHT	WEIGHT
220	820	1199	---
240	1025	1456	---
270	1290	---	1912
300	1585	---	---
330	1838	---	---
360	2720	---	---
400	3441	---	---
450	4095	---	---

Engineering Data

SIZE	CLASS 30			
	ARR. 1		ARRG. 8	
	SHAFT DIA.	GREASE BEARING	SHAFT DIA.	GREASE BEARING
220	2.1875	RB	1.6875	HDB
240	2.4375	RB	1.9375	HDB
270	2.4375	RB	1.9375	HDB
300	2.6875	RB	1.9375	HDB
330	2.9375	RB	2.1875	HDB
360	3.4375	RB	2.4375	HDB
400	3.4375	RB	2.9375	HDB
450	3.9375	RB	3.4375	SRB
490	4.4375	RB	3.9375	SRB
540	4.4375	SRB	4.4375	SRB
600	4.9375	SRB	4.4375	SRB
660	4.9375	SRB	4.9375	SRB
730	4.9375	SRB	4.9375	SRB

SIZE	CLASS 40				
	ARR. 1			ARRG. 8	
	SHAFT DIA.	GREASE BEARING	OIL BEARING	SHAFT DIA.	GREASE BEARING
220	2.1875	RB	---	2.4375	HDB
240	2.4375	RB	---	2.6875	HDB
270	2.4375	RB	---	2.9375	HDB
300	2.9375	RB	---	2.9375	HDB
330	3.4375	RB ¹	SRB ¹	2.1875	HDB
360	3.4375	RB	---	2.4375	HDB
400	3.9375	RB ¹	SRB ¹	2.9375	HDB
450	4.4375	RB ¹	SRB ¹	3.4375	SRB
490	4.4375	RB	---	3.9375	SRB
540	4.9375	RB	---	4.9375	SRB
600	4.9375	SRB	---	4.9375	SRB
660	4.9375	SRB	---	4.9375	SRB
730	5.4375	SRB	---	5.4375	SRB

SIZE	CLASS 50				
	ARR. 1			ARRG. 8	
	SHAFT DIA.	GREASE BEARING	OIL BEARING	SHAFT DIA.	GREASE BEARING
220	2.1875	RB	---	2.4375	HDB
240	2.4375	RB	---	2.6875	HDB
270	2.4375	RB	---	2.9375	HDB
300	2.9375	RB	---	2.9375	HDB
330	3.4375	RB ¹	SRB ¹	3.4375	HDB
360	3.9375	RB ¹	SRB ¹	2.4375	HDB
400	3.9375	RB ¹	SRB ¹	2.9375	HDB
450	4.4375	RB ¹	SRB ¹	3.4375	RB
490	4.4375	RB ¹	SRB ¹	3.9375	RB
540	4.9375	RB ¹	SRB ¹	4.4375-4.9375 ³	SRB
600	5.4375	SRB	SRB	4.9375-5.4375 ³	SRB ²
660	4.9375	SRB	---	4.9375	SRB
730	5.4375	SRB	---	5.4375	SRB

1 - Refer to tables on p. 7 for bearing RPM limits and selection.

2 - Bearing is SRB for static oil lubrication also

3 - First number is diameter at drive bearing, second number is diameter at inboard bearing.

RB = Unit Roller Bearings

HDB = Heavy Duty Ball Bearing

SRB = Spherical Roller Bearing with Split Pillow Block Housing

Performance Data

220 HAF with evasé

Wheel: 25" dia.
Max BHP = 1.67 (RPM/1000)³

Outlet Area: 2.49 sq. ft.
Evasé Outlet Area: 3.80 sq. ft.

CFM	OV	18" SP		22" SP		26" SP		28" SP		30" SP		34" SP		38" SP		42" SP		46" SP		48" SP		50" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8000	2105	2615	27.98																				
9000	2368	2670	31.05																				
10000	2632	2744	34.45																				
11000	2895	2828	38.22																				
12000	3158	2921	42.41																				
13000	3421	3021	47.03																				
14000	3684	3123	51.94																				
15000	3947	3227	57.18																				
16000	4211	3333	62.77																				
17000	4474	3445	68.93																				

MAXIMUM RPM: Class 30 — 3410 Class 40 — 4000 Class 50 — 4367

240 HAF with evasé

Wheel: 27.50" dia.
Max BHP = 2.69 (RPM/1000)³

Outlet Area: 3.01 sq. ft.
Evasé Outlet Area: 4.60 sq. ft.

CFM	OV	18" SP		22" SP		26" SP		28" SP		30" SP		34" SP		38" SP		42" SP		46" SP		48" SP		50" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
10000	2174	2388	34.81																				
11500	2500	2460	39.60																				
13000	2826	2551	45.05																				
14500	3152	2654	51.22																				
16000	3478	2767	58.20																				
17500	3804	2883	65.75																				
19000	4130	3001	73.88																				
20500	4457	3126	82.98																				
22000	4783	3258	93.14																				
23500	5109	3398	104.65																				

MAXIMUM RPM: Class 30 — 3100 Class 40 — 3700 Class 50 — 3970

270 HAF with evasé

Wheel: 30.38" dia.
Max BHP = 4.43 (RPM/1000)³

Outlet Area: 3.67 sq. ft.
Evasé Outlet Area: 5.61 sq. ft.

CFM	OV	18" SP		22" SP		26" SP		28" SP		30" SP		34" SP		38" SP		42" SP		46" SP		48" SP		50" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12000	2139	2156	41.86																				
14000	2496	2225	48.19																				
16000	2852	2315	55.46																				
18000	3209	2419	63.87																				
20000	3565	2531	73.29																				
22000	3922	2647	83.65																				
24000	4278	2766	94.95																				
26000	4635	2893	107.75																				
28000	4991	3028	122.29																				
30000	5348	3170	138.82																				

MAXIMUM RPM: Class 30 — 2806 Class 40 — 3349 Class 50 — 3594

300 HAF with evasé

Wheel: 33.50" dia.
Max BHP = 7.23 (RPM/1000)³

Outlet Area: 4.47 sq. ft.
Evasé Outlet Area: 6.83 sq. ft.

CFM	OV	18" SP		22" SP		26" SP		28" SP		30" SP		34" SP		38" SP		42" SP		46" SP		48" SP		50" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
15000	2196	1963	52.09																				
17000	2489	2017	58.52																				
19000	2782	2084	65.76																				
21000	3075	2158	73.76																				
23000	3367	2240	82.81																				
25000	3660	2325	92.59																				
27000	3953	2411	103.02																				
29000	4246	2500	114.36																				
31000	4539	2593	126.78																				
33000	4832	2692	140.74																				

MAXIMUM RPM: Class 30 — 2545 Class 40 — 3037 Class 50 — 3259

Legend:

Class 30
Class 40
Class 50

Performance shown is for fans with an outlet evasé, with an outlet duct, and with free or ducted inlet. BHP as shown is a fan shaft brake horsepower and does not include belt drive losses.

Performance Data

730 HAF with evasé

Wheel: 82.00" dia.
Max BHP = 643 (RPM/1000)³

Outlet Area: 26.78 sq. ft.
Evasé Outlet Area: 41.01 sq. ft.

CFM	OV	18" SP		22" SP		26" SP		28" SP		30" SP		34" SP		38" SP		42" SP		46" SP		48" SP		50" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
90000	2195	802	307.16	877	386.94																		
95000	2317	808	319.70	880	399.79																		
100000	2438	816	334.16	885	414.58	953	502.38	986	548.34														
105000	2560	824	348.31	891	429.86	957	518.89	989	564.97	1020	611.56												
110000	2682	834	364.71	899	447.51	962	536.11	993	582.54	1024	631.01	1084	730.76										
120000	2926	856	399.41	917	484.99	976	574.82	1005	621.87	1033	669.04	1090	770.50	1146	877.42								
130000	3170	881	437.70	938	526.01	994	619.13	1021	666.35	1048	715.34	1101	816.83	1153	922.92	1205	1035.62	1255	1150.37				
140000	3414	908	479.33	962	571.13	1015	667.74	1041	717.33	1066	766.34	1116	868.95	1165	975.87	1214	1089.61	1262	1206.57	1285	1264.49	1309	1326.95
150000	3658	936	523.53	988	619.81	1038	719.16	1062	769.03	1087	822.44	1134	926.53	1181	1036.34	1227	1149.73	1272	1266.80	1294	1325.85	1317	1389.39
160000	3901	965	570.72	1016	673.14	1063	774.44	1087	828.53	1110	881.86	1155	990.02	1199	1100.47	1243	1216.19	1286	1334.67	1307	1394.61	1328	1455.97

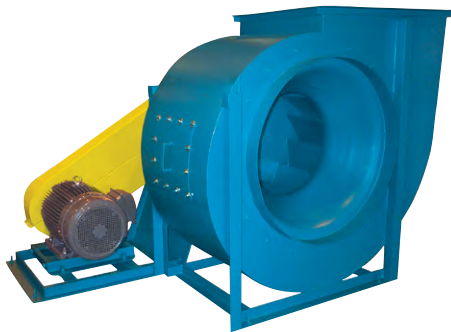
MAXIMUM RPM: Class 30 — 1070 Class 40 — 1295 Class 50 — 1385

Legend:

Class 30
Class 40
Class 50

Performance shown is for fans with an outlet evasé, with an outlet duct, and with free or ducted inlet. BHP as shown is a fan shaft brake horsepower and does not include belt drive losses.

Additional High Pressure Fans



BCS

High efficiency, backward curved fan for relatively clean air in high pressure applications. Capacities to 270,000 CFM, pressures to 40" w.g. Additional information can be found in Bulletin 400.



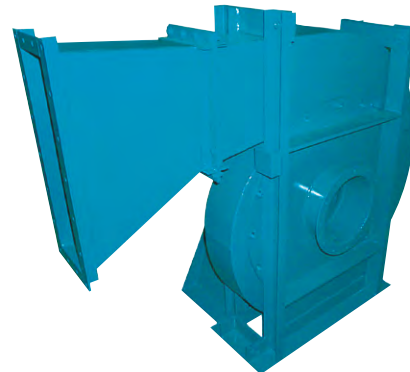
HIB

Designed to handle clean to light dust loaded air. Backward curve design. Capacities to 177,000 CFM, pressures to 40" w.g. Additional information can be found in Bulletin 1100.



MBR

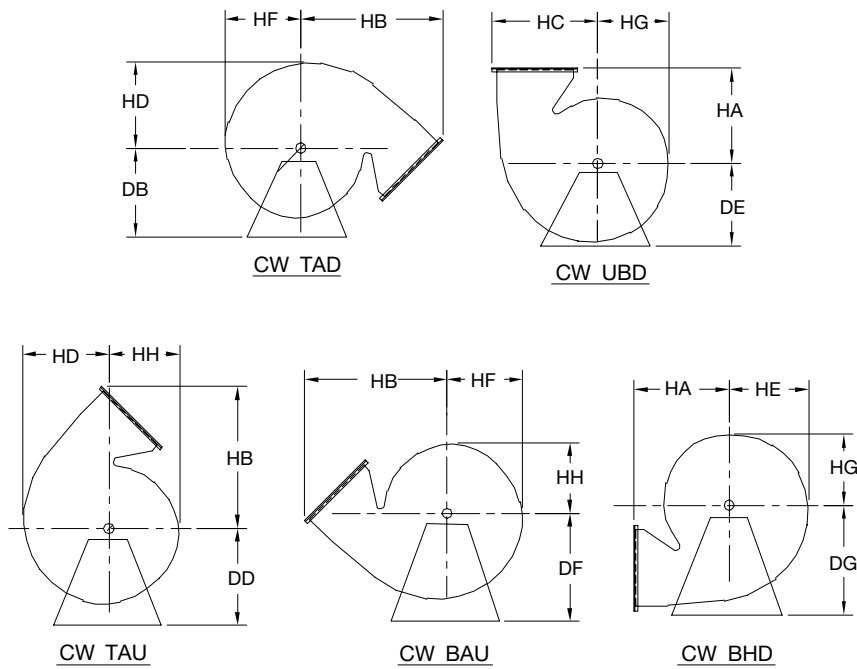
Radial bladed wheel designed to handle clean, hot or particulate-laden air. Capacities to 19,000 CFM, pressures to 125" w.g. Additional information can be found in Bulletin 1400.



BCN

High efficiency, backward curved fan suitable for industrial processes involving clean as well as light particulate-laden air in high pressure applications. Capacities to 75,000 CFM, pressures to 100" w.g. Additional information can be found in Bulletin 1450.

Dimensional Data - Housings (Arr. 1, 4 & 8)

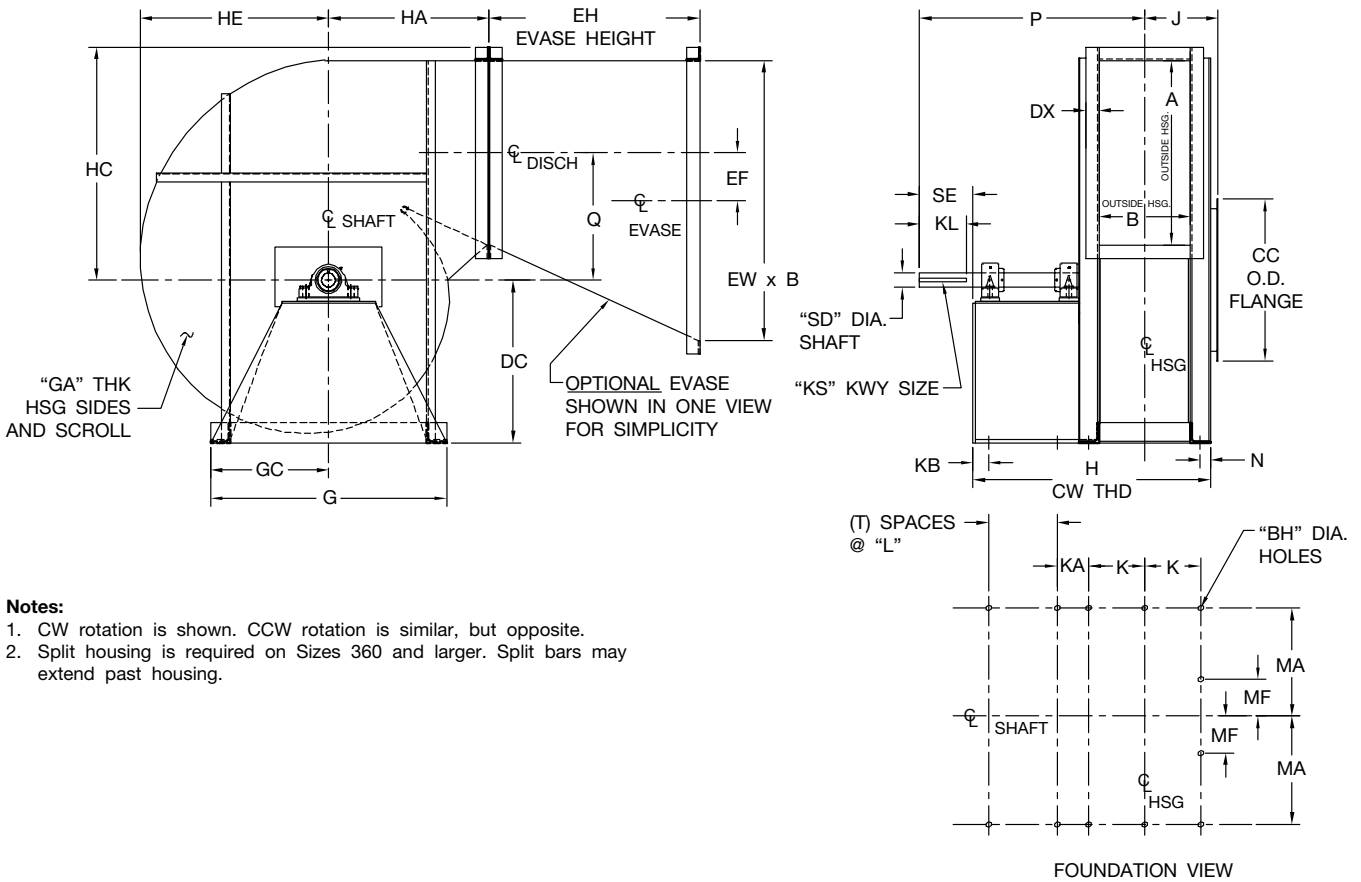


HAF- Housing assembly dimensions (without evasé)

SIZE	DB / DC	DD / DE	DF / DG	HA	HB	HC	HD	HE	HF	HG	HH
220	24.38	29.19	37.44	24.00	41.69	34.94	30.68	28.19	25.63	23.00	20.44
240	26.63	31.94	40.69	26.44	45.69	38.19	33.75	31.00	28.13	25.25	22.44
270	29.19	35.13	44.38	29.14	50.25	41.94	37.19	34.13	31.00	27.81	24.75
300	32.00	38.56	48.50	32.13	55.25	46.00	40.94	37.56	34.13	30.63	27.19
330	35.13	42.44	53.56	35.50	60.88	50.56	45.19	41.44	37.63	33.75	30.00
360	38.69	46.81	58.81	39.31	67.25	55.81	50.00	45.88	41.63	37.31	33.13
400	42.50	51.50	64.88	43.38	74.44	61.88	55.06	50.56	45.88	41.13	36.50
450	46.81	56.75	71.13	48.00	82.06	68.06	60.81	55.81	50.63	45.38	40.31
490	51.38	62.44	77.81	52.75	90.19	74.75	67.00	61.44	55.81	50.00	44.38
540	56.63	68.88	85.44	58.44	99.63	82.44	74.06	67.94	61.69	55.25	49.00
600	62.44	76.06	94.44	64.63	110.31	91.44	81.88	75.13	68.19	61.06	54.19
660	68.50	83.50	103.25	71.06	121.13	100.25	90.00	82.56	74.94	67.13	59.56
730	75.50	92.13	113.94	78.50	133.94	110.94	99.38	91.19	82.75	74.13	65.75

Dimensions are subject to change. Certified drawings available upon request.
 Larger sizes may require special shipping arrangements due to transportation regulations.
 CW rotation shown, CCW rotation is similar, but opposite.

Dimensional Data - Arrangement 1



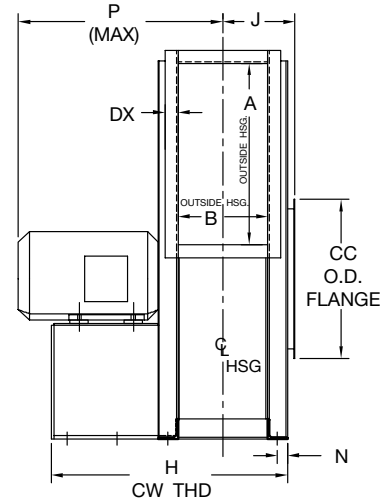
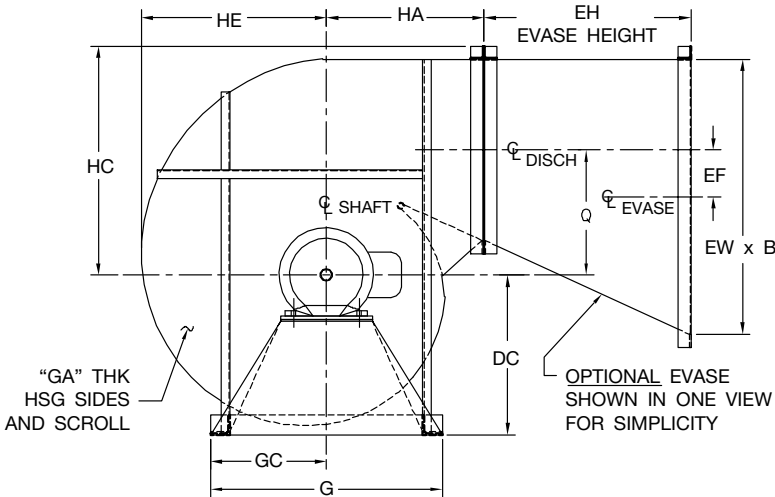
SIZE	A	B	BH	C	CC	DC	EF	EH	EW	G	GA	GC	H	HA	HC	HE	J
220	27.69	13.69	0.81	19.50	24.25	24.38	7.19	31.63	42.00	35.38	0.25	17.69	35.63	24.00	34.94	28.19	8.91
240	30.38	15.00	0.81	21.25	26.25	26.63	7.88	34.81	46.19	38.00	0.25	19.00	38.56	26.44	38.19	31.00	9.59
270	33.50	16.50	0.81	23.50	29.00	29.19	8.75	38.44	50.94	42.00	0.25	21.00	40.50	29.19	41.94	34.13	10.68
300	36.88	18.19	0.81	26.00	30.50	32.00	9.63	42.38	56.13	46.00	0.25	23.00	42.88	32.13	46.00	37.56	11.51
330	40.69	20.00	0.81	28.75	33.00	35.13	10.69	46.81	62.00	50.00	0.25	25.00	45.75	35.50	50.56	41.44	12.53
360	45.06	22.13	1.06	31.75	36.25	38.69	11.81	51.88	68.69	56.00	0.25	28.00	51.19	39.31	55.81	45.88	13.84
400	49.69	24.38	1.06	35.00	39.75	42.50	13.06	57.25	75.75	61.00	0.25	30.50	54.19	43.38	61.88	50.56	15.13
450	54.88	26.88	1.06	38.50	45.25	46.81	14.44	63.25	83.75	68.50	0.25	34.25	61.75	48.00	68.06	55.81	16.61
490	60.44	29.56	1.06	42.75	49.50	51.38	15.94	69.75	92.25	76.50	0.25	38.25	67.81	52.75	74.75	61.44	18.27
540	66.81	32.69	1.06	47.00	53.50	56.63	17.63	77.19	102.06	83.50	0.25	41.75	72.69	58.44	82.44	67.94	20.38
600	73.88	36.13	1.06	52.25	57.75	62.44	19.50	85.38	112.88	91.00	0.25	45.50	78.13	64.63	91.44	75.13	22.47
660	81.19	39.69	1.06	57.50	63.00	68.50	21.50	93.94	124.13	99.00	0.25	49.50	81.06	71.06	100.25	82.56	24.79
730	89.75	43.88	1.06	63.50	70.00	75.50	23.69	103.75	137.13	108.00	0.31	54.00	88.63	78.50	110.94	91.19	27.34

SIZE	K	KA	KB	KL	KS			L	T	MA	MF	P	Q	SE
					30	40	50							
220	8.38	4.75	2.38	7.00	0.50 x 0.25	0.50 x 0.25	0.50 x 0.25	10.25	1	16.19	5.50	33.75	19.06	8.00
240	9.00	4.75	2.38	7.13	0.63 x 0.31	0.63 x 0.31	0.63 x 0.31	11.94	1	17.50	5.50	36.31	21.00	8.25
270	9.75	4.75	2.38	7.13	0.63 x 0.31	0.63 x 0.31	0.63 x 0.31	12.38	1	19.50	6.50	37.50	23.19	8.25
300	10.63	4.75	2.38	7.50	0.63 x 0.31	0.75 x 0.38	0.75 x 0.38	13.00	1	21.50	6.50	39.50	25.56	8.75
330	11.50	5.75	2.38	7.69	0.75 x 0.38	0.88 x 0.44	0.88 x 0.44	13.13	1	23.50	7.50	41.75	28.25	9.00
360	13.06	6.25	2.88	7.63	0.88 x 0.44	0.88 x 0.44	1.00 x 0.50	13.94	1	26.00	7.50	45.13	31.25	9.00
400	14.19	6.25	2.88	8.63	0.88 x 0.44	1.00 x 0.50	1.00 x 0.50	14.69	1	28.50	10.50	48.00	34.56	10.00
450	16.44	6.25	2.88	8.63	1.00 x 0.50	1.00 x 0.50	1.00 x 0.50	8.88	2	32.25	11.50	53.31	38.13	10.00
490	18.75	6.25	3.00	9.63	1.00 x 0.50	1.00 x 0.50	1.00 x 0.50	9.50	2	36.25	12.50	58.06	42.06	11.00
540	20.38	7.25	3.00	9.50	1.00 x 0.50	1.25 x 0.63	1.25 x 0.63	9.88	2	39.75	13.50	61.31	46.56	11.00
600	22.06	7.25	3.00	10.25	1.25 x 0.63	1.25 x 0.63	1.25 x 0.63	10.88	2	43.50	14.50	65.81	51.50	11.75
660	23.88	7.25	3.00	10.50	1.25 x 0.63	1.25 x 0.63	1.25 x 0.63	10.50	2	47.50	14.50	67.19	56.63	12.00
730	25.94	8.25	3.00	10.50	1.25 x 0.63	1.25 x 0.63	1.25 x 0.63	11.75	2	52.00	15.50	72.69	62.56	12.00

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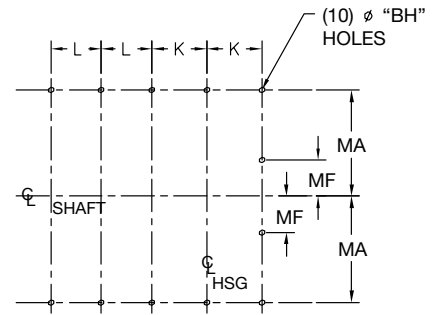
Dimensions are subject to change. Certified drawings available upon request.
Larger sizes may require special shipping arrangements due to transportation regulations.

Dimensional Data - Arrangement 4



Notes:

- 1. CW rotation is shown. CCW rotation is similar, but opposite.
- 2. Split housing is required on Sizes 360 and larger. Split bars may extend past housing.



FOUNDATION VIEW

SIZE	A	B	BH	C	CC	DC	EF	EH	EW	G	GA	GC	H		
													CL- 30	CL- 40	CL- 50
220	27.69	13.69	0.81	19.50	24.25	24.38	7.19	31.63	42.00	35.38	0.25	17.69	30.31	41.19	-
240	30.38	15.00	0.81	21.25	26.25	26.63	7.88	34.81	46.19	38.00	0.25	19.00	35.56	44.31	-
270	33.50	16.50	0.81	23.50	29.00	29.19	8.75	38.44	50.94	42.00	0.25	21.00	38.63	-	50.50
300	36.88	18.19	0.81	26.00	30.50	32.00	9.63	42.38	56.13	46.00	0.25	23.00	42.06	-	-
330	40.69	20.00	0.81	28.75	33.00	35.13	10.69	46.81	62.00	50.00	0.25	25.00	45.00	-	-
360	45.06	22.13	1.06	31.75	36.25	38.69	11.81	51.88	68.69	56.00	0.25	28.00	52.25	-	-
400	49.69	24.38	1.06	35.00	39.75	42.50	13.06	57.25	75.75	61.00	0.25	30.50	59.00	-	-
450	54.88	26.88	1.06	38.50	45.25	46.81	14.44	63.25	83.75	68.50	0.25	34.25	67.88	-	-

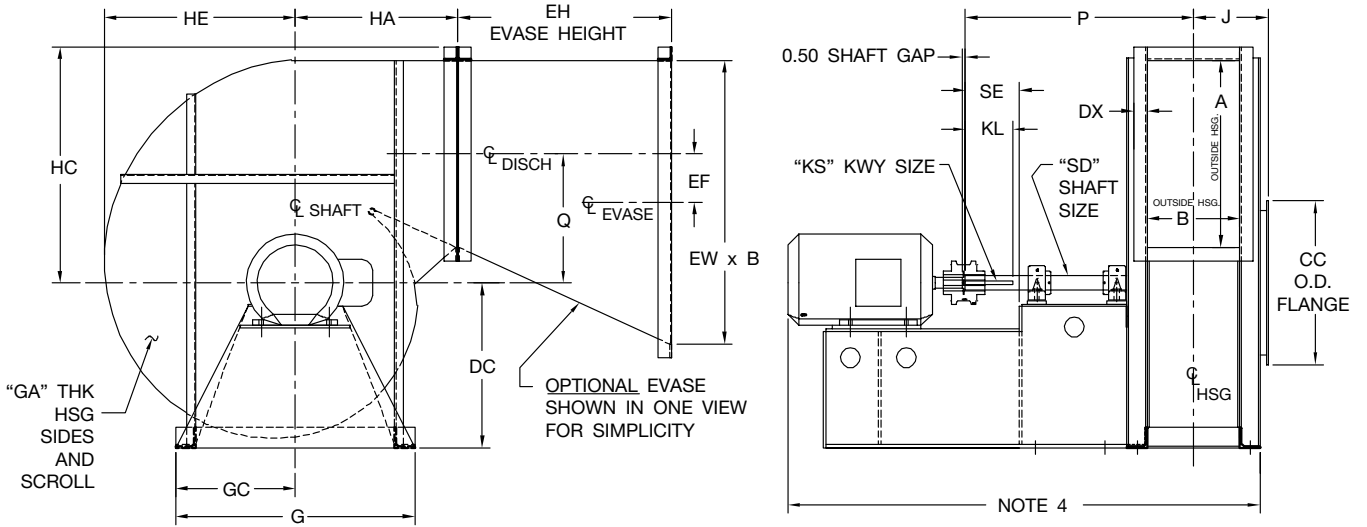
SIZE	HA	HC	HE	J	K	L			MA
						CL- 30	CL- 40	CL- 50	
220	24.00	34.94	28.19	8.91	8.38	5.00	10.00	-	16.19
240	26.44	38.19	31.00	9.59	9.00	7.00	11.00	-	17.50
270	29.19	41.94	34.13	10.68	9.75	7.75	-	13.50	19.50
300	32.13	46.00	37.56	11.51	10.63	8.50	-	-	21.50
330	35.50	50.56	41.44	12.53	11.50	9.25	-	-	23.50
360	39.31	55.81	45.88	13.84	13.06	11.00	-	-	26.00
400	43.38	61.88	50.56	15.13	14.19	13.75	-	-	28.50
450	48.00	68.06	55.81	16.61	16.44	15.50	-	-	32.25

SIZE	MF	N	P			Q	MAX MOTOR FRAME					
			CL- 30	CL- 40	CL- 50		CL- 30		CL- 40		CL- 50	
							MIN	MAX	MIN	MAX	MIN	MAX
220	5.50	1.50	24.31	39.63	-	19.06	182T	215T	324TS	405TS	-	-
240	5.50	1.50	29.81	45.13	-	21.00	182T	256T	364TS	444TS	-	-
270	6.50	1.50	32.88	-	54.00	23.19	254T	286T	-	-	404TS	447TS
300	6.50	1.50	36.19	-	-	25.56	254T	326T	-	-	-	-
330	7.50	1.50	38.88	-	-	28.25	284T	365T	-	-	-	-
360	7.50	2.00	49.94	-	-	31.25	364T	444T	-	-	-	-
400	10.50	2.00	60.44	-	-	34.56	404T	447T	-	-	-	-
450	11.50	2.00	62.06	-	-	38.13	444T	449T	-	-	-	-

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Dimensions are subject to change. Certified drawings available upon request.
 Larger sizes may require special shipping arrangements due to transportation regulations.

Dimensional Data - Arrangement 8



SIZE	A	B	C	CC	DC	EF	EH	EW	G	GA	GC	HA
220	27.69	13.69	19.50	24.25	24.38	7.19	31.63	42.00	35.38	0.25	17.69	24.00
240	30.38	15.00	21.25	26.25	26.63	7.88	34.81	46.19	38.00	0.25	19.00	26.44
270	33.50	16.50	23.50	29.00	29.19	8.75	38.44	50.94	42.00	0.25	21.00	29.19
300	36.88	18.19	26.00	30.50	32.00	9.63	42.38	56.13	46.00	0.25	23.00	32.13
330	40.69	20.00	28.75	33.00	35.13	10.69	46.81	62.00	50.00	0.25	25.00	35.50
360	45.06	22.13	31.75	36.25	38.69	11.81	51.88	68.69	56.00	0.25	28.00	39.31
400	49.69	24.38	35.00	39.75	42.50	13.06	57.25	75.75	61.00	0.25	30.50	43.38
450	54.88	26.88	38.50	45.25	46.81	14.44	63.25	83.75	68.50	0.25	34.25	48.00
490	60.44	29.56	42.75	49.50	51.38	15.94	69.75	92.25	76.50	0.25	38.25	52.75
540	66.81	32.69	47.00	53.50	56.63	17.63	77.19	102.06	83.50	0.25	41.75	58.44
600	73.88	36.13	52.25	57.75	62.44	19.50	85.38	112.88	91.00	0.25	45.50	64.63
660	81.19	39.69	57.50	63.00	68.50	21.50	93.94	124.13	99.00	0.25	49.50	71.06
730	89.75	43.88	63.50	70.00	75.50	23.69	103.75	137.13	108.00	0.31	54.00	78.50

SIZE	HC	HE	J	KL			KS		
				CL - 30	CL - 40	CL - 50	CL - 30	CL - 40	CL - 50
220	34.94	28.19	8.91	3.00	3.00	3.00	0.50 x 0.25	0.63 x 0.31	0.63 x 0.31
240	38.19	31.00	9.59	3.00	3.50	3.50	0.63 x 0.31	0.63 x 0.31	0.63 x 0.31
270	41.94	34.13	10.68	3.00	3.50	3.50	0.63 x 0.31	0.75 x 0.38	0.75 x 0.38
300	46.00	37.56	11.51	3.00	3.50	3.50	0.63 x 0.31	0.75 x 0.38	0.75 x 0.38
330	50.56	41.44	12.53	3.50	3.50	4.00	0.63 x 0.31	0.75 x 0.38	0.88 x 0.44
360	55.81	45.88	13.84	4.00	4.00	4.00	0.63 x 0.31	0.88 x 0.44	0.88 x 0.44
400	61.88	50.56	15.13	4.00	4.00	4.75	0.75 x 0.38	0.88 x 0.44	1.00 x 0.50
450	68.06	55.81	16.61	4.00	4.75	4.75	0.88 x 0.44	0.88 x 0.44	1.00 x 0.50
490	74.75	61.44	18.27	4.75	6.00	6.00	1.00 x 0.50	1.00 x 0.50	1.00 x 0.50
540	82.44	67.94	20.38	6.00	6.00	6.00	1.00 x 0.50	1.25 x 0.63	1.00 x 0.50
600	91.44	75.13	22.47	6.00	6.00	6.00	1.00 x 0.50	1.25 x 0.63	1.25 x 0.63
660	100.25	82.56	24.79	6.00	6.00	6.00	1.25 x 0.63	1.25 x 0.63	1.25 x 0.63
730	110.94	91.19	27.34	6.00	6.50	6.50	1.25 x 0.63	1.25 x 0.63	1.25 x 0.63

SIZE	P			Q	SE			SHAFT GAP ALL CLASSES	MAXIMUM MOTOR FRAME SIZE		
	CL - 30	CL - 40	CL - 50		CL - 30	CL - 40	CL - 50		CL-30	CL-40	CL-50
220	30.25	30.75	30.75	19.06	4.50	5.00	5.00	0.5	254T	405TS	405TS
240	33.06	33.56	33.56	21.00	5.00	5.50	5.50	0.5	284T	445TS	445TS
270	34.25	34.75	34.75	23.19	5.00	5.50	5.50	0.5	324T	447TS	449TS
300	35.75	36.25	36.25	25.56	5.00	5.50	5.50	0.5	364T	449TS	449TS
330	38.25	38.25	38.75	28.25	5.50	5.50	6.00	0.5	405T	405T	5009A
360	42.13	42.13	42.13	31.25	6.00	6.00	6.00	0.5	447T	447T	447T
400	44.00	44.00	45.00	34.56	6.00	6.00	7.00	0.5	449T	449T	449T
450	49.31	50.31	50.31	38.13	6.00	7.00	7.00	0.5	449T	5011B	5011B
490	54.06	55.06	55.06	42.06	7.00	8.00	8.00	0.5	449T	5808B	5808B
540	58.31	58.31	58.31	46.56	8.00	8.00	8.00	0.5	5808B	5810B	500C
600	62.06	62.06	62.56	51.50	8.00	8.00	8.50	0.5	5808B	450C	500C
660	63.19	63.19	63.69	56.63	8.00	8.00	8.50	0.5	6808C	500C	500C
730	68.69	69.19	69.69	62.56	8.00	8.50	9.00	0.5	5810C	500C	500C

Notes:

- CW rotation is shown. CCW rotation is similar, but opposite.
- Split housing is required on Sizes 360 and larger. Split bars may extend past housing.
- Motor drawing required to determine motor length and foundation plan.
- Pedestal will need concrete with grillage if motor HP > 1000 or if fan centerline height > 90". Motor and grillage to be mounted on concrete pier provided by others.
- Steel pedestal to be filled with concrete if HP > 400, or at engineer's discretion. Concrete by others.
- Shaft diameter 'SD' for Class 50, Sizes 540 and 600:
1st number = diameter at motor side bearing
2nd number = diameter at fan side bearing

Dimensions are subject to change. Certified drawings available upon request.

BC1002592

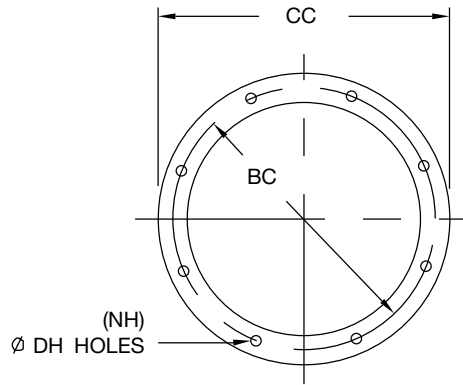
Larger sizes may require special shipping arrangements due to transportation regulations.

Dimensional Data - Inlet & Outlet Flanges

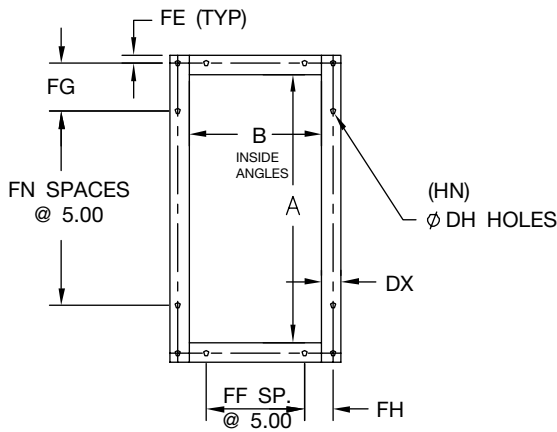
Flanged Inlet Dimensions

SIZE	CC	BC	NH	DH	FLANGE WIDTH
220	24.25	22.50	12	0.56	2.38
240	26.25	24.50	16	0.56	2.50
270	29.00	27.25	16	0.56	2.75
300	30.50	28.00	16	0.56	2.25
330	33.00	30.75	16	0.56	2.13
360	36.25	33.75	24	0.56	2.25
400	39.75	37.00	32	0.56	2.38
450	45.25	42.50	32	0.56	3.38
490	49.50	46.00	40	0.69	3.38
540	53.50	51.00	40	0.69	3.25
600	57.75	55.50	40	0.69	2.75
660	63.00	60.00	40	0.69	2.75
730	70.00	66.50	48	0.69	3.25

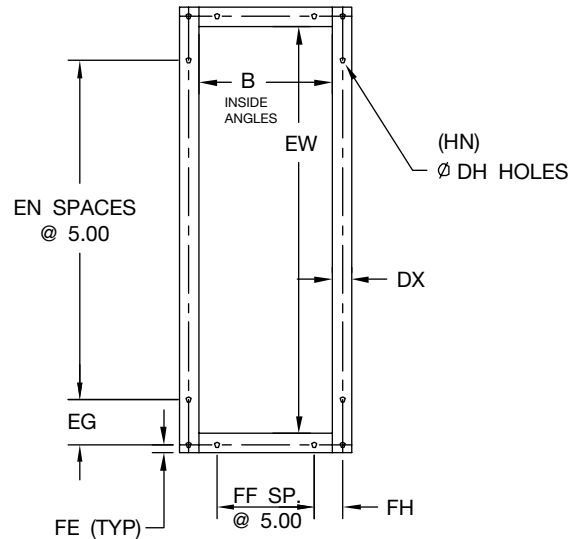
Furnished as standard



INLET FLANGE



OUTLET FLANGE DETAIL



EVASÉ OUTLET FLANGE DETAIL

Flanged Outlet and Evasé Dimensions

SIZE	A	B	EW	DH	EG	EN	FF	FE	FG	FH	FN	HN		DX
												FAN	EVASÉ	
220	27.69	13.69	42.00	0.56	4.63	7	2	0.88	4.94	3.00	4	16	22	2.00
240	30.38	15.00	46.19	0.56	4.25	8	2	0.88	3.81	3.63	5	18	24	2.00
270	33.50	16.50	50.94	0.56	4.06	9	2	0.88	5.38	4.38	5	18	26	2.00
300	36.88	18.19	56.13	0.56	4.19	10	3	0.88	4.56	2.75	6	22	30	2.00
330	40.69	20.00	62.00	0.56	4.63	11	3	0.88	3.94	3.63	7	24	32	2.00
360	45.06	22.13	68.69	0.56	3.00	13	3	0.88	3.63	4.69	8	26	36	2.00
400	49.69	24.38	75.75	0.56	4.25	14	4	1.13	3.69	3.56	9	30	40	2.50
450	54.88	26.88	83.75	0.56	3.25	16	4	1.13	3.81	4.81	10	32	44	2.50
490	60.44	29.56	92.25	0.69	5.00	17	5	1.13	4.06	3.63	11	36	48	2.50
540	66.81	32.69	102.06	0.69	4.94	19	5	1.13	4.75	5.19	12	38	52	2.50
600	73.88	36.13	112.88	0.69	3.06	22	6	1.38	3.56	4.69	14	44	60	3.00
660	81.19	39.69	124.13	0.69	3.69	24	7	1.38	4.75	4.00	15	48	66	3.00
730	89.75	43.88	137.13	0.69	2.94	27	8	1.63	4.25	3.81	17	54	74	3.50

Dimensions are subject to change. Certified drawings available upon request.

Outlet flange furnished as standard

Typical Specifications

Furnish and install as indicated on the plans, Twin City Fan and Blower model HAF industrial duty airfoil fans.

HOUSING — Fan housings shall be made of heavy-gauge steel with continuously welded construction and braced with structural shapes to eliminate any resonant vibration and provide smooth operation. Sizes 360 and larger will be furnished with a pie-shaped split as standard. The housing split shall be fully gasketed and bolted together to prevent any leaks. Flanged inlet and outlet shall be provided as standard equipment. Bearing support members shall be fabricated of heavy steel shapes or made of concrete to ensure maximum rigidity.

WHEEL — Blade design shall be airfoil for high efficiency and have non-overloading performance characteristics. Blades shall be die-formed of special alloy material for strength and accuracy of contour and continuously welded to the wheel inlet cone and backplate. A heavy fabricated steel (not cast iron) hub shall be provided. Wheels shall be shrunk fit on the shafts, and hubs shall include puller holes for use in the event of wheel removal. Wheels shall be statically and dynamically balanced on precision electronic machines, as well as balance tuned after complete assembly.

SHAFT — Shafts are to be solid AISI 1040 or 1045 hot rolled steel, accurately turned, ground, polished, and ring gauged for accuracy.

BEARINGS — Fans shall be supplied with heavy duty, self-aligning, grease lubricated, anti-friction, pillow block type bearings selected for a minimum average bearing life (AFBMA L-50) in excess of 200,000 hours at the maximum fan RPM. Sizes 220 through 540 are supplied with ball or roller bearings. Sizes 600 through 730 are supplied with spherical roller bearings with split pillow block housings. Where required, sleeve bearings may be used with appropriate cooling method for high carrying loads.

DRIVE — Motor and fan sheaves shall be cast iron. Drives and belts are to be located external to the fan casing and rated for 150% of the required motor HP.

FINISH & COATING — The entire assembly, excluding the shaft, shall be thoroughly degreased and deburred before application of a protective coating which is applied to the entire assembly. The fan shaft should be coated with a petroleum-based rust protectant.

ACCESSORIES — When specified, accessories such as belt guards, access doors, companion flanges, variable inlet vanes, outlet dampers, inlet boxes, inlet box dampers, easés, easé dampers, shaft coolers, shaft seals, closure plates, inlet screens, drains, etc., shall be provided by Twin City Fan & Blower to maintain one source responsibility.

FACTORY TEST RUN — All fans prior to shipment shall be completely assembled and test run as a unit at operating speed or maximum RPM allowed for the particular construction type. Each wheel shall be statically and dynamically balanced to balance grade G6.3 or better per ANSI S2.19. Balance readings shall be taken using electronic type equipment and records shall be maintained of the readings of axial, vertical, and horizontal direction on each of the bearings. A written copy of this record shall be available upon request.

GUARANTEE — Manufacturer shall guarantee the workmanship and materials for its High Pressure Industrial Airfoil Bladed Fans for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.

INDUSTRIAL PROCESS AND COMMERCIAL VENTILATION SYSTEMS

CENTRIFUGAL FANS | UTILITY SETS | PLENUM & PLUG FANS | INLINE CENTRIFUGAL FANS
MIXED FLOW FANS | TUBEAXIAL & VANEAXIAL FANS | PROPELLER WALL FANS | PROPELLER ROOF VENTILATORS
CENTRIFUGAL ROOF & WALL EXHAUSTERS | CEILING VENTILATORS | GRAVITY VENTILATORS | DUCT BLOWERS
RADIAL BLADED FANS | RADIAL TIP FANS | HIGH EFFICIENCY INDUSTRIAL FANS | PRESSURE BLOWERS
LABORATORY EXHAUST FANS | FILTERED SUPPLY FANS | MANCOOLERS | FIBERGLASS FANS | CUSTOM FANS



TWIN CITY FAN & BLOWER
WWW.TCF.COM

5959 TRENTON LANE N | MINNEAPOLIS, MN 55442 | PHONE: 763-551-7600 | FAX: 763-551-7601

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