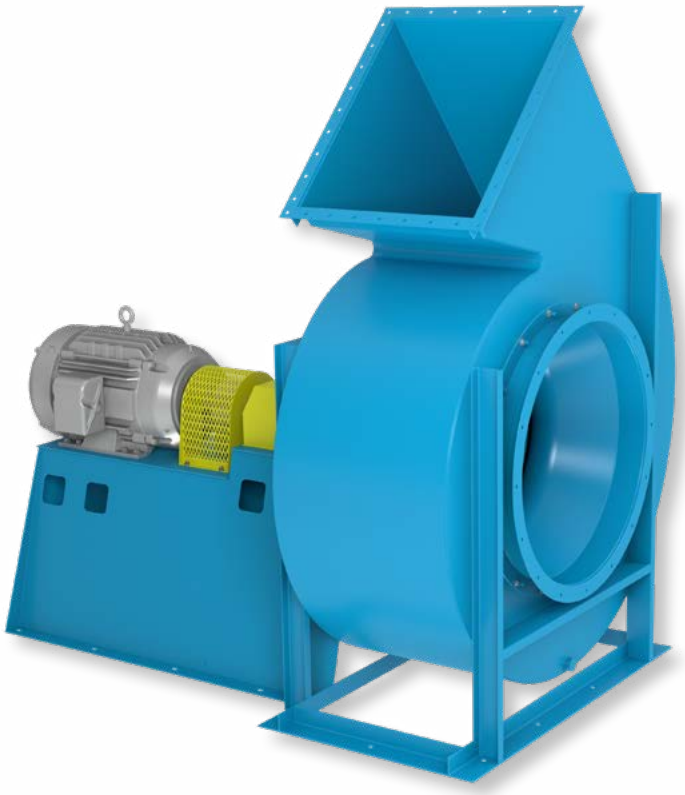
TCF

TWIN CITY FAN

INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

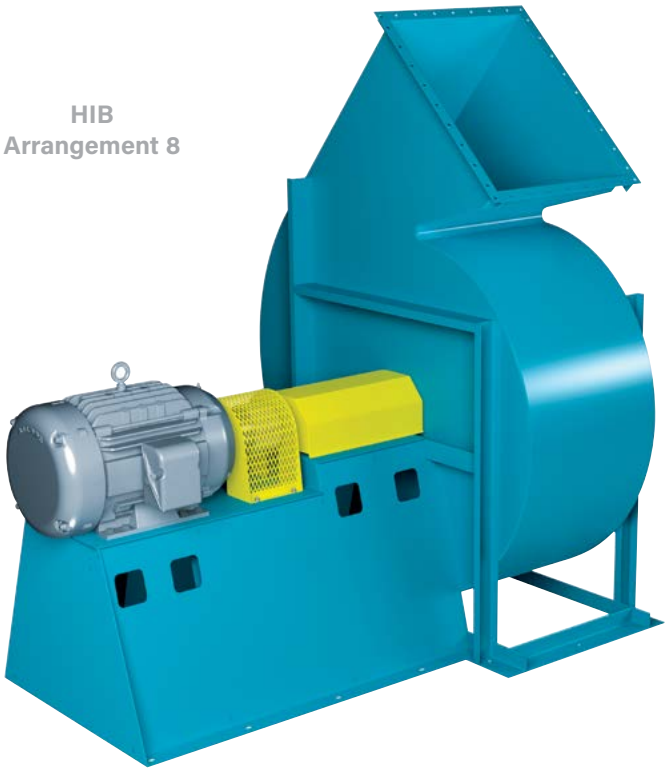
HIGH EFFICIENCY INDUSTRIAL BACKWARD CURVED FANS

Model HIB



Overview

HIB



HIB
Arrangement 8

Model HIB fans from Twin City Fan & Blower employ a high-efficiency backwardly-curved impeller in a ruggedly constructed fan housing. Performance ratings shown in the curve are based on tests to AMCA Standard 210. The HIB is designed to handle clean air or air with light dust loading, these fans are widely used on the clean side of baghouses, in high-efficiency filtration, forced-draft and other high pressure process supply applications. The curve below shows the HIB's characteristic high efficiency over a broad range and its non-overloading horsepower curve.

Typical Industries Include

Agriculture, Air Pollution Control, Automotive, Boilers, Brick, Car Wash, Commercial Plan & Spec, Composting, Ethanol, Food & Beverage, Foundry, General Manufacturing, Glass, Green/LEED, HVAC, Institutional & Hospitality, Metal & Minerals, Microchip, Mining, Nuclear, OEM, Petrochemical, Pharmaceutical, Power Generation, Pulp & Paper, Recycling, Textile, Transportation

Configurations

Available in Arrangement 1, 9F and 9H (Belt Driven) and Arrangement 3SI, 4, 7SI and 8 (Direct Drive) configurations

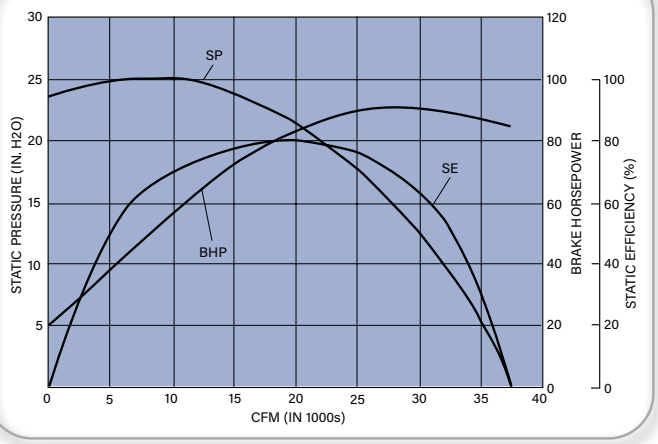
Impeller Types

Backward Curved

Optional Construction

Split Housings, Nominally Leak Tight Construction, High Temperature Construction

Typical HIB Curve



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For complete product performance, drawings and available accessories, download our Fan Selector software at *tcf.com*.

Overview

HIB

Standard Features

- High-efficiency, non-overloading impeller with continuously-welded blades and a steel hub
- Statically and dynamically balanced rotor assembly
- Heavy-duty self-aligning grease lubricated anti-friction bearings
- Heavy-gauge reinforced housing and bearing pedestal for vibration-free service
- All fans standard with flanged inlet and outlet, access door, shaft seal and drain
- Sizes 360 and larger fans are equipped with a pie-shaped split in the casing to permit the impeller and shaft to be removed without disturbing the inlet and outlet ductwork

Sizes

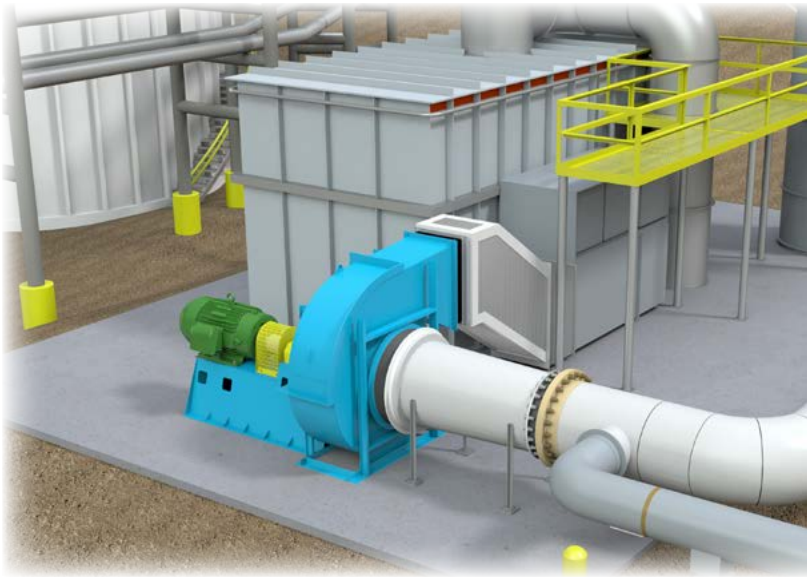
20.50" to 90.75" impeller diameters

Capabilities

High temperature construction to 800°F available

HIB Design 20 - Suitable to 20,000 FPM tip speed
Static pressure to 27" w.g.

HIB Design 24 - Suitable to 24,000 FPM tip speed
Static pressure to 40" w.g.



RTO System with Model HIB

Energy Regulations

Twin City Fan & Blower supports energy efficiency regulations enacted by the U.S. Department of Energy (DOE) and specific states. The selection and application of fan products is a significant part of these regulations. Engineers and specifiers must understand how to apply TCF products to their specific applications to meet applicable DOE and state regulatory requirements. Twin City Fan & Blower has made significant investments in product testing and development to provide efficient products. Developments in Twin City Fan & Blower's Fan Selector software are in place to aid your decision in product selection to assist with meeting the efficiency requirements as stipulated in the applicable regulations.

HIB High-Efficiency
Backward Curved Impeller

Arrangement 1
SWSI — Single Width, Single Inlet

Arrangement 1 is usually belt driven. The impeller is overhung on the shaft, i.e., mounted at the end of the shaft. The motor can be mounted in any of the four AMCA standard motor positions, W, X, Y or Z. The two fan bearings are mounted on the bearing pedestal, out of the airstream, which makes them ideal for high temperature or contaminated air applications. Belt driven configurations offer performance flexibility.

Arrangement 3SI
SWSI — Single Width, Single Inlet

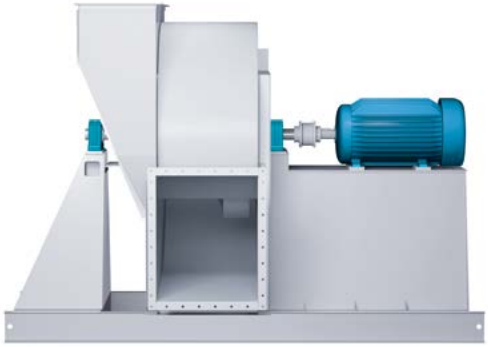
Arrangement 3SI is direct drive. Like the Arrangement 3, the impeller is mounted between the bearings. The Arrangement 3SI utilizes an integrated inlet box to locate the bearing outside of the airstream on independent bearing pedestals, which allows for elevated operating temperatures and relatively clean air. The Arrangement 3SI includes a pie split housing for easy impeller removal. The motor is located by the customer off the fan assembly and direct coupled to the shaft opposite of the inlet box side.

Arrangement 4
SWSI — Single Width, Single Inlet

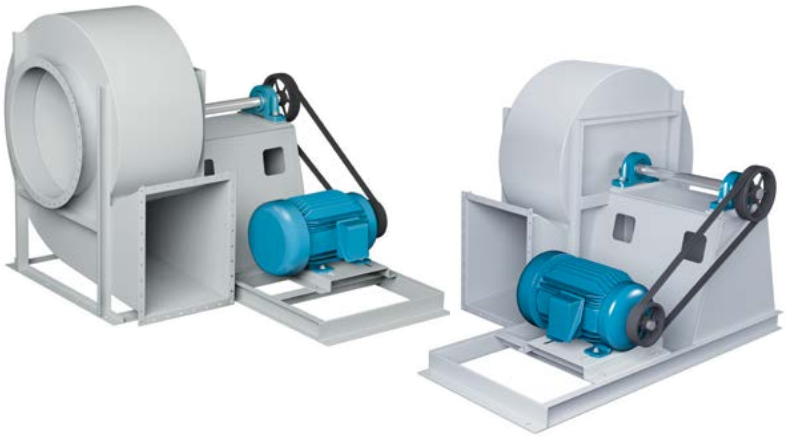
Arrangement 4 is a direct drive fan. The impeller is mounted directly to the motor shaft with the motor mounted to a pedestal. Arrangement 4 offers low maintenance since there are no fan bearings, fan shaft or drive parts to maintain. Arrangement 4 fans are typically limited up to size 365.

Arrangement 7SI
SWSI — Single Width, Single Inlet

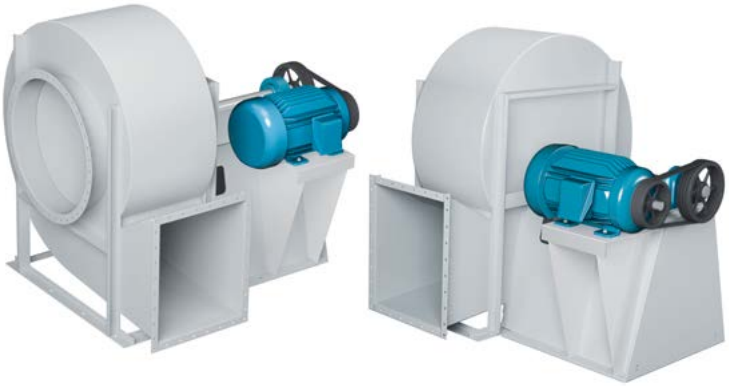
Arrangement 7SI is direct drive. Like the Arrangement 3SI, the impeller is mounted between the bearings. The Arrangement 7SI includes an integrated inlet box to locate the bearing outside of the airstream. The pedestal is designed to accommodate the motor, flexible coupling and one bearing. A pie split housing is provided for easy impeller removal. The fan assembly is then mounted on a unitary base as standard. An inertia base is an available option.



Arrangement 8
SWSI — Single Width, Single Inlet
Arrangement 8 is a modified version of Arrangement 1 used for direct drive. The Arrangement 1 bearing pedestal is extended to accommodate the motor. A flexible coupling connects the fan and motor shaft.



Arrangement 9F
SWSI — Single Width, Single Inlet
Arrangement 9F is available when an Arrangement 9 requires a motor that is too large to mount on the bearing pedestal. The fan frame is extended to accommodate the motor, for horizontal mounting, similar to an Arrangement 1 fan. Arrangement 9F is not suitable for mounting vibration isolators directly under the fan.



Arrangement 9H
SWSI — Single Width, Single Inlet
Arrangement 9H is available for motor mounting on the side of the bearing pedestal when horizontal motor adjustment is preferred. The pedestal is extended on one side to accommodate the motor for horizontal mounting. Typically, the motor is mounted on the left side of the pedestal for CW rotation fans and on the right side for CCW rotation fans.

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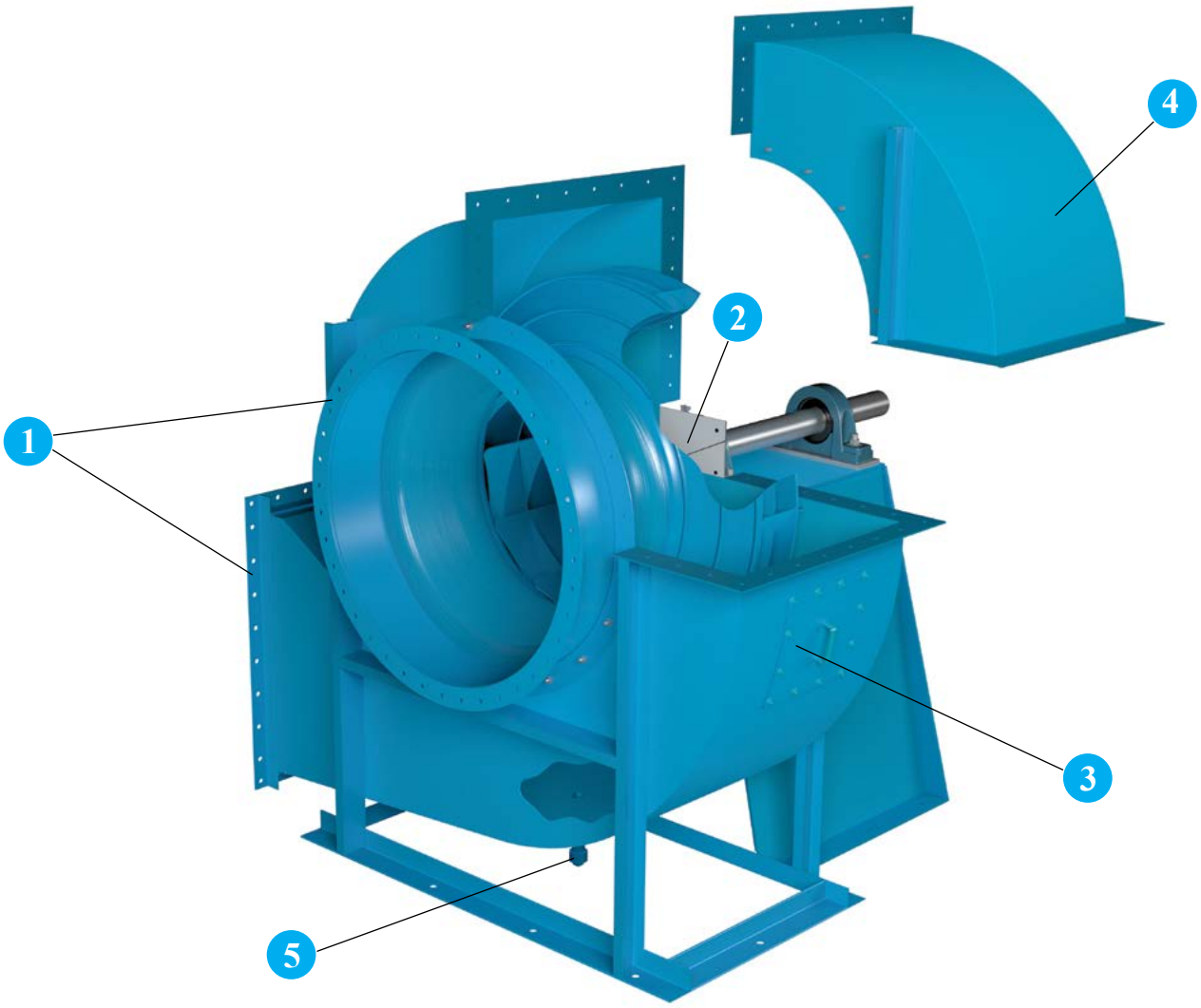
OPTIONS/ACCESSORIES



1 **Flanged Outlet/Inlet** Punched inlet flanges are available for duct mounting. Punched outlet flanges are welded to the fan outlet.

2 **Shaft Seal** A shaft seal reduces leakage and protects the bearings from a contaminated airstream. Standard seals are constructed of Tetraglas compressed between an aluminum cover plate and the fan housing. The standard shaft seal is not gas tight. Special seals are available for low leakage applications requiring more protection.

3 **Bolted Access Door** For quick impeller inspection and maintenance. Access doors are specified where examination and cleaning of the fan interior is required.

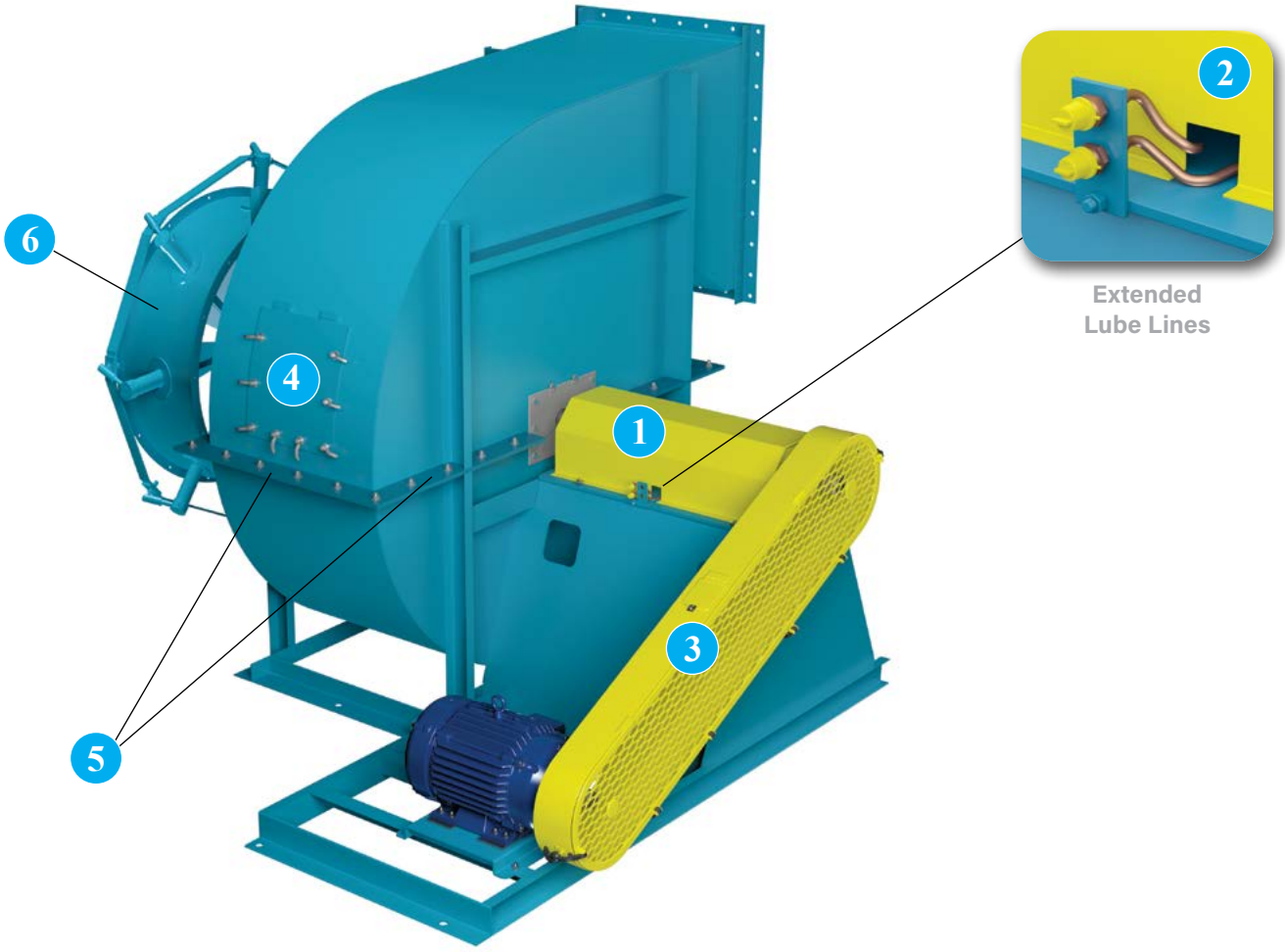
4 **Pie Split (360 and above)** All sizes are designed to permit impeller removal through the fan inlet. Sizes 40 and larger are available with a horizontal, pie-shaped or three-way split housing, which allows removal of the impeller and shaft without disconnecting ductwork.

5 **3/4" NPT Drain Connection** Standard 3/4" NPT half coupling located at the lowest point of the housing. Available with or without plug.

Other Accessories Include:

- Steel Wall & Aluminum Clad Housings
- Insulation Pins

OPTIONS/ACCESSORIES



1 **Shaft & Bearing Guard** Sheet metal guards cover shaft and bearings and come with extended lube lines to a common point outside of the guard. A guard spanning the shaft between the bearings is available to provide open access to bearings for lubrication and vibration monitoring.

2 **Extended Lube Lines** Allow for easy lubrication of bearings on belt driven units without disassembly by extending polyethylene lines from fan bearings to exterior of base.

3 **Quick Access Belt Guard** Belt guard protects personnel from the moving drive parts. OSHA and quick access guards are available. Arrangement 10 offers a standard belt guard.

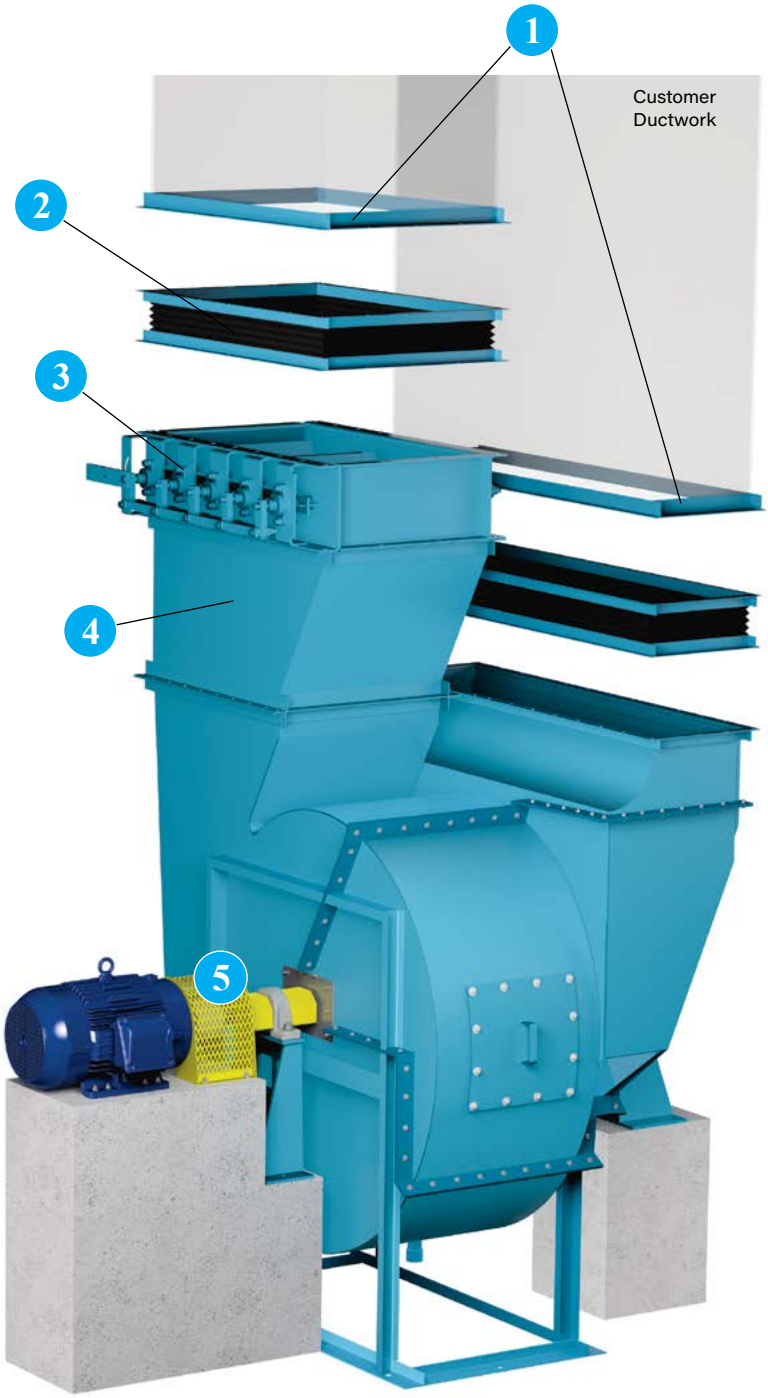
4 **Quick Access Door** For quick impeller inspection and maintenance. Access doors are specified where examination and cleaning of the fan interior is required.

5 **Horizontal Split** All sizes are designed to permit impeller removal through the fan inlet. Sizes 40 and larger are available with a horizontal, pie-shaped or three-way split housing, which allows removal of the impeller and shaft without disconnecting ductwork.

6 **External Inlet Vane** For reduced flow situations with relatively clean air, inlet vane type dampers are available to maintain fan efficiency. The inlet vanes are external type attached to the inlet of the fan. Standard construction inlet vanes are suitable in applications up to 300°F. High temperature inlet vanes are also available for temperatures up to 600°F.

Note: On Arrangement 9F & 9H fans, a NEMA slide base is standard.

OPTIONS/ACCESSORIES



1 **Inlet/Outlet Companion Flanges** Companion flanges are commonly connected to a user's duct for easy installation of flexible connections between the fan and duct. Companion flanges and flex connectors are punched to match the fan's inlet or outlet punching.

2 **Flex Connectors** Flex connectors are punched to match the fan's inlet or outlet punching.

3 **Opposed Bladed Dampers** Outlet dampers add resistance to the fan by shifting the operating point to the left of the rating point. The horsepower savings depends on the relative position on the fan curve and is usually much less than 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. 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. Available to 750°F construction.

4 **Evasé** The evasé is usually fabricated by the customer as a part of the ductwork. The fan outlet must be expanded to equal the evasé area shown in the catalog to obtain the rated performance. Construction is of the same gauge as fan housing when purchased from the factory.

5 **Shaft and Coupling Guard / Exposed Bearing** Sheet metal guard spanning the shaft between the bearings to provide open access to bearings for lubrication and vibration monitoring. A full guard to cover shaft and bearings is available.

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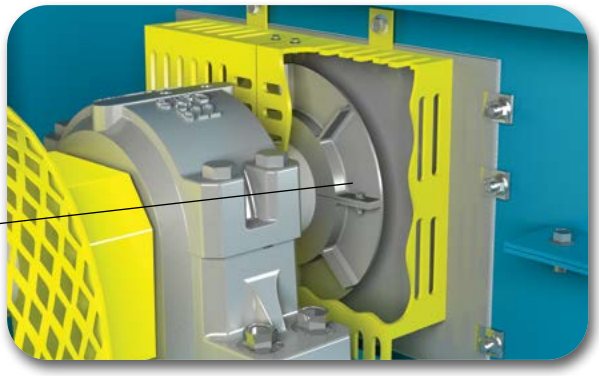
High Temperature Construction

Standard fan design options are available to handle airstream temperatures to 800°F. Consult your Twin City Fan & Blower representative for applications over 800°F. The fan bearings should be kept outside of the hot airstream and below 130°F ambient. High temperature operating limits, available arrangements and necessary modifications are shown in Table 1.

Shaft Cooler (Heat Slinger)

Cast aluminum shaft cooler dissipates the heat transferred to the shaft from the airstream protecting the fan bearings. Recommended for applications over 300°F.



Shaft Cooler & Safety Guard

Table 1. High Temperature Construction Requirements

TEMPERATURE (°F)	TYPE OF BEARING	LUBRICATION	OTHER REQUIREMENTS	AVAILABLE ARRANGEMENTS
–20°F to +300°F	Ball or Roller	Grease	Standard Fan	Arr. 1, 3SI, 7SI, 8, 9F Arr. 4 to 180°F
300°F to 500°F	Ball or Roller with (1) Expansion Bearing	High Temp. Grease	Shaft Cooler, Shaft Seal. Motor Heat Shield is Included on arr. 9 fans	Arr. 1, 3SI, 7SI, 8, 9F
500°F to 800°F	Ball or Roller with (1) Expansion Bearing	High Temp. Grease	High Temp. Aluminum Paint Shaft Cooler, Shaft Seal. Motor Heat Shield is Included on arr. 9 fans	Arr. 1, 3SI, 7SI, 8, 9F

Derating Factors For High Temperature

Fan operation at high temperature adversely affects the strength of fan impellers. As a result, the maximum safe speed must be derated by the factors shown in Table 2.

Example: Maximum safe speed at 600°F for a size 365 BC, SWSI, Class II steel impeller = 0.86 x 1283 = 1103 RPM (1283 RPM is maximum RPM at 70°F).

Table 2. Derating Factors For High Temperature

TEMPERATURE (°F)	STANDARD STEEL	STAINLESS STEEL
70	1.00	1.00
200	0.99	0.95
250	0.98	0.93
300	0.98	0.91
400	0.96	0.88
500	0.93	0.84
600	0.90	0.81
700	0.80	0.78
800	0.60	0.75
900	—	0.73
1000	—	0.70

Spark Resistant Construction

Fan applications may involve the handling of potentially explosive or flammable particles, fumes or vapors. Such applications require careful consideration by the system designer to insure the safe handling of such gases. Twin City Fan & Blower offers the following classifications of spark resistant construction per AMCA Standard 99-0401-86. It is the specifier's or the user's responsibility to specify the type of spark resistant construction with full recognition of the potential hazards and the degree of protection required.

Type A: All parts of the fan in contact with the air or gas being handled shall be made of nonferrous material — usually aluminum and limited to 250°F.

Type B: The fan shall have a nonferrous impeller and nonferrous ring about the opening through which the shaft passes — usually aluminum impeller and rub ring and limited to 250°F.

Type C: The fan shall be so constructed that a shift of the impeller or shaft will not permit two ferrous parts of the fan to rub or strike. This is accomplished with a steel inlet cone with copper/bronze tip and an aluminum rub plate at the shaft opening.

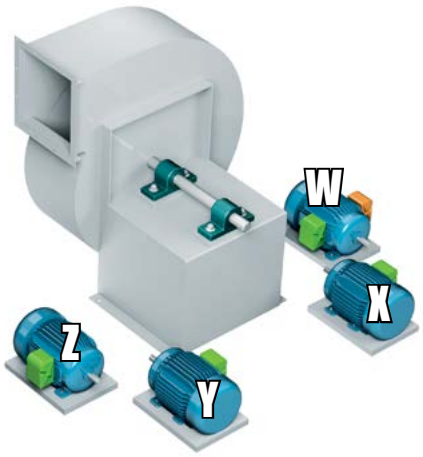
CLOCKWISE (CW) - ROTATION & DISCHARGE (ROTATION VIEW FROM DRIVE SIDE)

UBD Upblast CW 360 | **TAU** Top Angular Up CW 45 | **THD** Top Horizontal CW 90 | **TAD** Top Angular Down CW 135 | **DBD** Downblast CW 180 | **BAD** Bottom Angular Down CW 225 | **BHD** Bottom Horizontal CW 270 | **BAU** Bottom Angular Up CW 315

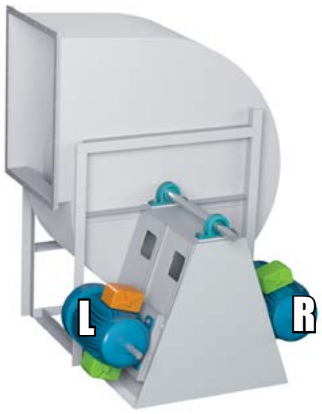
COUNTER CLOCKWISE (CCW) - ROTATION & DISCHARGE (ROTATION VIEW FROM DRIVE SIDE)

UBD Upblast CCW 360 | **TAU** Top Angular Up CCW 45 | **THD** Top Horizontal CCW 90 | **TAD** Top Angular Down CCW 135 | **DBD** Downblast CCW 180 | **BAD** Bottom Angular Down CCW 225 | **BHD** Bottom Horizontal CCW 270 | **BAU** Bottom Angular Up CCW 315

MOTOR POSITIONS

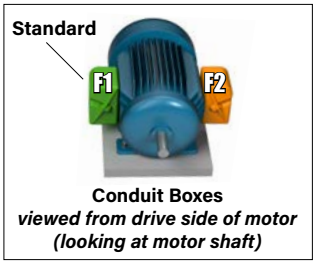


Arrangements 1 & 3



Arrangement 9

Arrangement 9F



Conduit Boxes
viewed from drive side of motor (looking at motor shaft)

Unitary Base

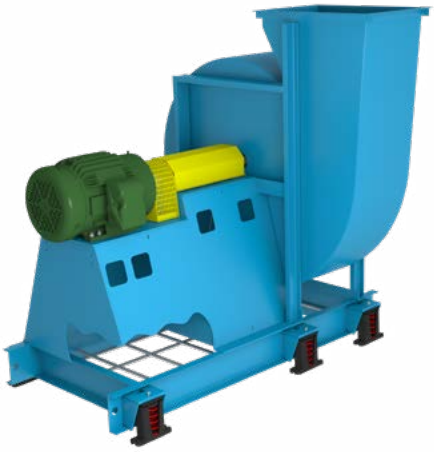
A structural steel base provides common support to fan, motor and drive including guards. This style of base is designed for use without isolators and requires adequate foundation integrity for proper operation.

Isolation Bases

Isolation Bases provide a common support to fan, motor and drive including guards. Constructed with heavy-duty structural channels and includes spring isolations. Not available on Arrangement 8. Flexible connectors at the inlet and outlet are required. Vibration isloation bases require spring or rubber-in-shear type isolators that are designed to limit forces transmitted to the support structure of an operating fan.

Inertia Bases

Inertia Bases provide a common support to fan, motor and drive including guards and utilize heavy-duty structural channel with spring isolators. Inertia bases incorporate reinforcing rods and require customer supplied concrete. Inertia bases are typically used on longer, direct drive fans to mitigate assembly deflection, maintaining proper alignment between the motor, coupling, shaft and bearings. Flexible connectors at inlet and outlet are required.



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Inlet Boxes

Bolt-on (detached) or attached (integral) type, generously designed to minimize pressure drop. Same heavy-gauge construction as fan housing. Drain and bolted access door are standard inlet box acessories. Specify inlet box position referring to AMCA Standard 99 shown below.

Integrated

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

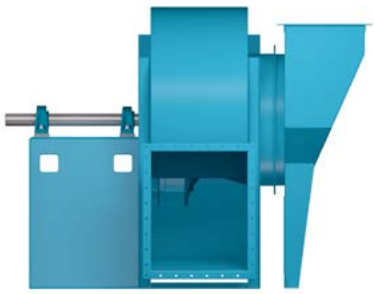
Detached Bolt-On

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

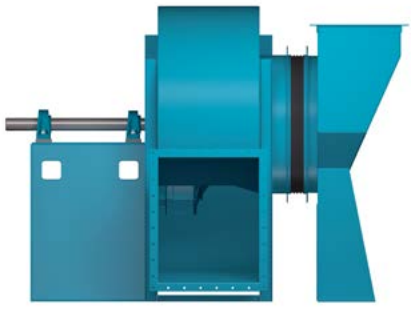
Detached Free-Standing

Self-supporting units with independent mounting frames.

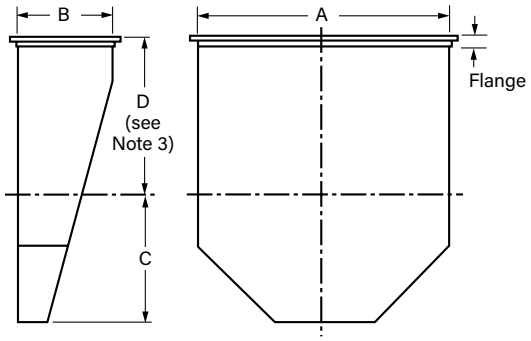
Integrated



Detached Bolt-On



Detached Free-Standing

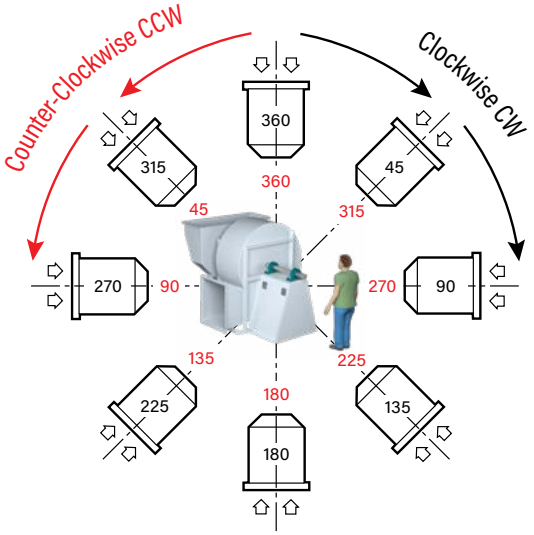


Typical Detached Inlet Box Dimensions

FAN SIZE	A	B	C	D	INLET AREA (FT²)	F
180	9.75	28.75	3.19	10.00	1.85	1.5 x 1.5
200	10.63	31.50	3.19	11.00	2.22	1.5 x 1.5
220	11.75	35.00	3.19	12.00	2.81	1.5 x 1.5
240	13.00	38.50	3.19	12.50	3.34	1.5 x 1.5
270	14.38	42.50	3.19	14.00	4.10	1.5 x 1.5
300	15.88	46.88	3.19	15.00	5.00	1.5 x 1.5
330	17.88	52.13	3.19	16.50	6.11	2.0 x 2.0
360	19.38	57.38	3.19	20.06	7.52	2.0 x 2.0
400	21.38	63.38	3.19	21.88	9.20	2.5 x 2.5
450	23.38	69.38	4.19	24.50	11.00	2.5 x 2.5
490	25.88	76.88	4.19	26.69	13.60	2.5 x 2.5
540	28.50	84.50	5.25	28.75	16.30	2.5 x 2.5
600	31.50	93.50	5.25	30.88	20.00	3.0 x 3.0
660	34.88	103.50	5.25	33.44	24.60	3.0 x 3.0
730	38.50	114.50	6.25	37.00	30.00	3.5 x 3.5
800	42.50	126.50	6.25	40.38	36.00	3.5 x 3.5

Dimensions are not to be used for construction.
Dimensions are in inches unless otherwise noted.

Inlet Box Positions For Centrifugal Fans



Inlet box positions **determined from Drive Side**.

INLET BOX POSITIONS AND DESCRIPTIONS
45 — Angular Down Intake
90 — Horizontal Intake
135 — Angular Up Intake
180 — Bottom Up Intake
225 — Angular Up Intake
270 — Horizontal 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.

Material and Mechanical Specifications

FAN SIZE	DESIGN	SHAFT DIA.***	MAX. HP V-BELT DRIVE*	MIN. SHEAVE DIA.*	MAX. HP DIRECT DRIVE	MAX RPM**	IMPELLER GAUGES				WR^2 VALUE LB-FT^2	HSG. GAUGE
							BACK PLATE	BLADE	RING	IMPELLER CONE		
180	20	2 3/16	30	5.5	40	3724	1/4	10 Ga.	---	10 Ga.	19	7
	24	2 3/16	50	5.1	60	3839	5/16	7 Ga.	---	10 Ga.	23	7
200	20	2 3/16	30	6.1	50	3395	1/4	10 Ga.	---	10 Ga.	28	7
	24	2 7/16	50	5.6	75	3800	5/16	7 Ga.	---	10 Ga.	33	7
220	20	2 3/16	50	7.3	60	3058	1/4	10 Ga.	---	10 Ga.	42	7
	24	2 7/16	60	6.2	75	3670	5/16	7 Ga.	---	10 Ga.	49	7
240	20	2 3/16	60	8.1	75	2778	1/4	10 Ga.	---	10 Ga.	57	7
	24	2 11/16	75	6.9	100	3333	5/16	7 Ga.	---	10 Ga.	68	7
270	20	2 7/16	75	9.5	100	2515	5/16	10 Ga.	10 Ga.	10 Ga.	126	7
	24	2 11/16	150	7.9	150	3018	5/16	7 Ga.	7 Ga.	10 Ga.	141	7
300	20	2 11/16	100	11.1	150	2280	5/16	10 Ga.	10 Ga.	10 Ga.	187	7
	24	2 15/16	200	8.7	200	2737	5/16	7 Ga.	7 Ga.	10 Ga.	241	7
330	20	2 11/16	100	11.4	150	2065	5/16	10 Ga.	10 Ga.	10 Ga.	283	7
	24	2 15/16	200	9.7	250	2478	5/16	7 Ga.	7 Ga.	10 Ga.	339	7
360	20	2 15/16	150	12.6	150	1863	5/16	10 Ga.	10 Ga.	10 Ga.	390	7
	24	3 7/16	250	11.4	300	2236	5/16	7 Ga.	7 Ga.	10 Ga.	474	1/4
400	20	3 7/16	200	12.1	200	1688	5/16	10 Ga.	10 Ga.	7 Ga.	657	7
	24	3 15/16	250	13.5	400	2026	3/8	7 Ga.	7 Ga.	7 Ga.	857	1/4
450	20	3 7/16	200	14.7	250	1528	5/16	10 Ga.	10 Ga.	7 Ga.	1035	7
	24	3 15/16	250	11.5	500	1833	3/8	1/4	1/4	7 Ga.	1524	1/4
490	20	3 15/16	250	14.2	300	1386	3/8	7 Ga.	7 Ga.	7 Ga.	1953	7
	24	4 7/16	400	14.1	600	1790	1/2	1/4	1/4	7 Ga.	2405	1/4
540	20	3 3/16	250	17.2	400	1252	3/8	7 Ga.	7 Ga.	1/4	3249	7
	24	4 3/16	400	17.4	700	1503	1/2	1/4	1/4	1/4	3932	1/4
600	20	4 7/16	300	17.7	400	1132	1/2	7 Ga.	1/4	1/4	5446	1/4
	24	4 15/16	400	15.6	80	1358	1/2	1/4	5/16	1/4	5906	1/4
660	20	4 7/16	300	21.0	500	1029	1/2	7 Ga.	1/4	1/4	7834	1/4
	24	4 15/16	400	18.6	1000	1235	5/8	1/4	5/16	1/4	9476	1/4
730	20	4 7/16	300	24.6	600	932	1/2	7 Ga.	1/4	1/4	11507	1/4
	24	4 15/16	400	21.6	1200	1190	5/8	1/4	5/16	1/4	14309	1/4
800†	20	4 15/16	400	25.7	700	842	1/2	7 Ga.	1/4	1/4	17120	1/4
	24	5 15/16	400	19.6	1400	1010	5/8	1/4	5/16	1/4	21318	1/4

NOTES:
* Minimum sheave diameter when using maximum horsepower motor. Check with factory on applications over 250 HP.
** Maximum fan RPM listed is for carbon steel construction. For stainless steel construction, contact the factory.
*** Tabulated shaft diameters do not apply to direct drive arrangements.
† Size 800 HIB is not supplied with conventional bearing pedestal. Instead, channel subbases are supplied. The subbase is to be mounted on concrete pedestal in the field. Fan weights include weight of channel subbase.

Bare Fan Weights (Lbs.)

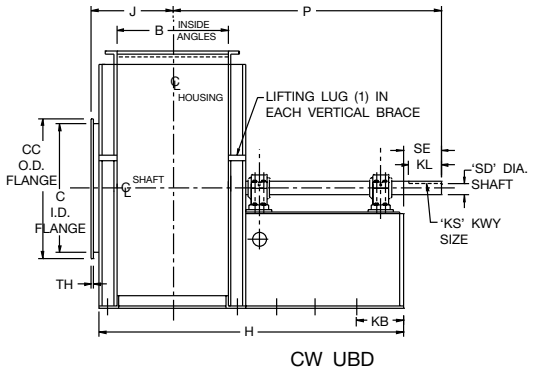
FAN SIZE	CLASS 20				CLASS 24			
	ARR. 1, 9	ARR. 4	ARR. 8	ARR. 9F	ARR. 1, 9	ARR. 4	ARR. 8	ARR. 9F
180	775	775	1008	814	800	800	1040	840
200	850	850	1105	893	875	875	1138	919
220	890	890	1157	935	950	950	1235	998
240	930	930	1209	977	1030	1030	1339	1082
270	1120	1120	1456	1176	1180	1180	1534	1239
300	1320	1320	1716	1386	1370	1370	1781	1439
330	1550	1550	2015	1628	1610	1610	2093	1691
360	1980	1980	2574	2079	2370	2370	3081	2489
400	2480	2480	3224	2604	2910	2910	3783	3056
450	3020	3020	3926	3171	3600	3600	4680	3780
490	3840	—	4992	4032	4460	—	5798	4683
540	4720	—	6136	4956	5550	—	7215	5828
600	6480	—	8424	6804	6590	—	8567	6920
660	7430	—	9659	7802	7900	—	10270	8295
730	9030	—	11739	9482	9590	—	12467	10070
800†	8880	—	11544	—	9630	—	12519	—

Impeller Weights (Lbs.)

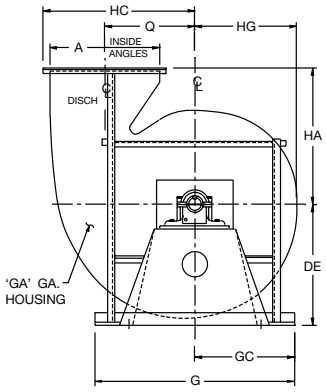
FAN SIZE	DESIGN	
	20	24
180	61	69
200	70	84
220	86	103
240	96	119
270	157	174
300	184	222
330	230	263
360	257	302
400	372	464
450	439	613
490	693	837
540	980	1155
600	1278	1355
660	1476	1723
730	1727	2104
800	2033	2517

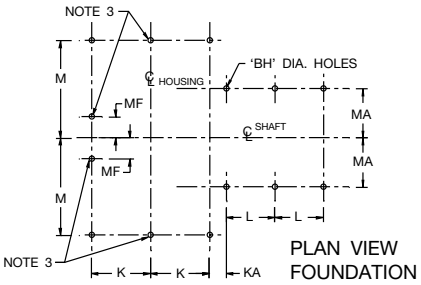
NOTES:
† Size 800 HIB is not supplied with conventional bearings pedestal. Instead, channel subbases are supplied. The subbase is to be mounted on concrete pedestal in the field. Fan weights include weight of channel subbase.

HIB, Arrangement 1, Sizes 180-330

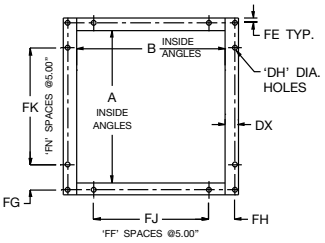


CW UBD

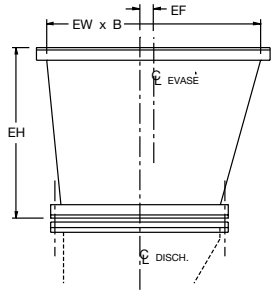




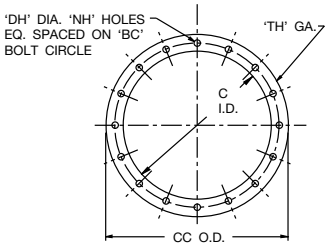
PLAN VIEW FOUNDATION



OUTLET FLANGE DETAIL



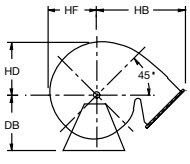
EVASÉ (OPTIONAL)



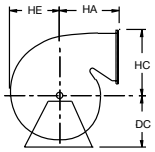
INLET FLANGE DETAIL

NOTES:

1. CW rotation shown, CCW rotation is similar but opposite.
2. Standard accessories: bolted access door, housing drain, shaft seal, punched inlet and outlet flanges.
3. These holes are in Size 270, 300 and 330 only.



CW TAD



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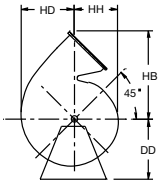
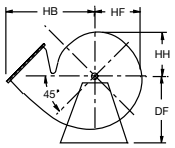
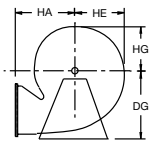


CW TAU



CW BAU



CW BHD

FAN SIZE	A	B	BC	BH	C	CC	DB DC	DD DE	DF DG	DH	DX	EF	EH	EW	FE	FF	FG	FH	FJ	FK
180	14.81	12.00	18.00	0.81	15.75	19.75	15.00	17.25	20.75	0.56	1.50	3.28	18.00	23.75	0.63	2	3.28	1.88	10.00	10.00
200	16.19	13.13	19.75	0.81	17.50	21.50	17.00	18.75	22.50	0.56	1.50	3.66	19.50	26.00	0.63	2	3.97	2.44	10.00	10.00
220	17.94	14.56	21.50	0.81	19.25	23.25	18.50	20.75	24.75	0.56	1.50	4.16	21.75	29.25	0.63	2	4.84	3.16	10.00	10.00
240	19.69	16.00	23.25	0.81	21.00	25.00	20.25	22.50	27.00	0.56	1.50	4.66	24.00	32.25	0.63	2	5.72	3.88	10.00	10.00
270	21.75	17.63	25.75	0.81	23.50	27.50	22.50	25.00	31.25	0.56	1.50	5.28	26.25	35.69	0.63	2	4.25	4.69	10.00	15.00
300	23.94	19.38	28.00	0.81	25.75	29.75	24.75	27.50	34.00	0.56	1.50	5.81	29.00	39.31	0.63	3	5.34	3.06	15.00	15.00
330	26.38	21.38	30.75	0.81	28.50	32.50	27.00	30.00	37.50	0.56	2.00	6.41	32.00	43.44	0.88	3	4.31	4.31	15.00	25.00

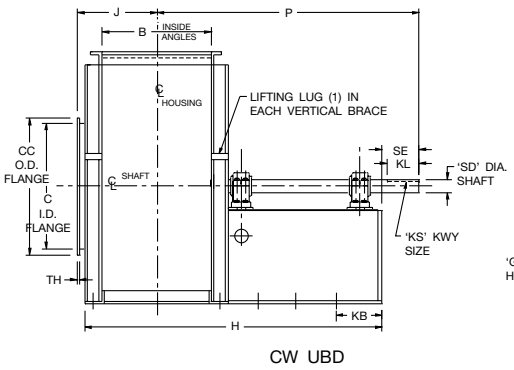
FAN SIZE	FN	G	GA	GC	H	HA	HB	HC	HD	HE	HF	HG	HH	J	K	KA	KB	KL
180	2	31.13	7	15.56	39.00	17.81	26.63	19.94	16.31	15.50	14.63	13.81	12.94	10.19	7.63	3.38	2.00	6.00
200	2	33.50	7	16.75	41.13	19.50	29.13	21.75	17.88	16.94	16.00	15.13	14.19	10.75	8.19	3.38	2.00	6.50
220	2	36.00	7	18.00	44.13	21.63	32.19	23.94	19.81	18.81	17.75	16.75	15.75	11.50	8.94	4.38	2.00	7.00
240	2	38.38	7	19.19	46.50	23.69	35.25	26.19	21.81	20.69	19.56	18.44	17.31	12.19	9.63	4.38	2.00	7.00
270	3	42.75	7	21.38	49.38	26.13	38.81	28.75	24.06	22.81	21.63	20.31	19.13	13.00	10.44	5.13	2.00	7.50
300	3	47.25	7	23.63	52.38	28.75	42.63	31.56	26.56	25.19	23.81	22.44	21.13	13.88	11.31	6.38	2.00	8.00
330	4	50.75	7	25.38	55.38	31.75	47.31	35.13	29.31	27.81	26.31	24.81	23.31	14.88	12.31	7.38	2.00	8.25

FAN SIZE	KS		L	M	MA	MF	NH	P	Q	SD		SE	TH
	HIB-20	HIB-24								HIB-20	HIB-24		
180	0.50x0.25	0.50x0.25	8.50	14.19	8.50	—	12	37.00	11.06	2.187	2.187	7.00	0.19
200	0.50x0.25	0.63x0.31	9.00	15.38	9.50	—	12	39.06	12.19	2.187	2.437	7.50	0.19
220	0.50x0.25	0.63x0.31	9.25	16.63	11.00	—	12	41.81	13.50	2.187	2.437	8.00	0.19
240	0.50x0.25	0.63x0.31	9.75	17.81	12.00	—	16	43.50	14.88	2.187	2.687	8.00	0.19
270	0.63x0.31	0.63x0.31	10.00	20.00	14.00	6.50	16	45.81	16.38	2.437	2.687	8.25	0.19
300	0.63x0.31	0.75x0.38	10.00	22.25	14.50	7.38	16	48.44	18.13	2.687	2.937	8.75	0.19
330	0.63x0.31	0.75x0.38	10.00	24.00	15.00	8.00	16	50.69	19.94	2.687	2.937	9.00	0.19

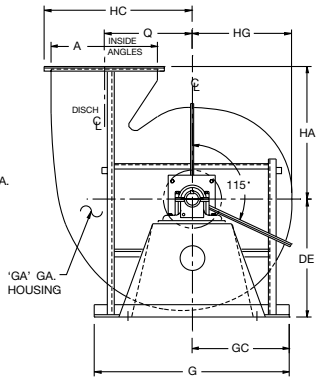
BC9987D

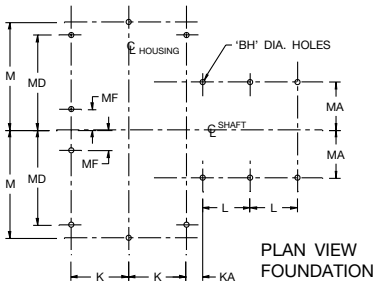
DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

HIB, Arrangement 1, Sizes 360-800

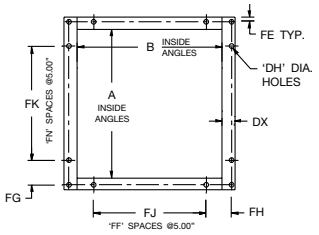


CW UBD

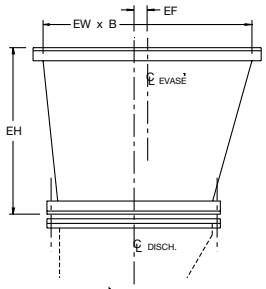




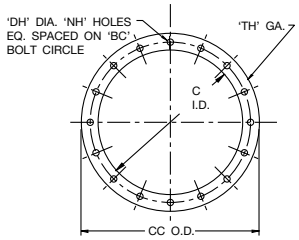
PLAN VIEW FOUNDATION



OUTLET FLANGE DETAIL



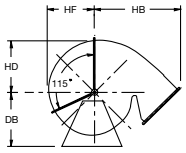
EVASE (OPTIONAL)



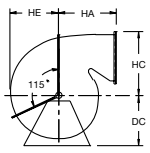
INLET FLANGE DETAIL

NOTES:

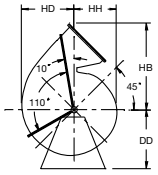
1. CW rotation shown, CCW rotation is similar but opposite.
2. Size 800 will be supplied with channel subbase to be mounted on concrete pedestal in the field.
3. Standard accessories: bolted access door, housing drain, pie split housing, shaft seal, punched inlet and outlet flanges.



CW TAD



CW THD



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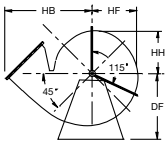
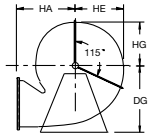


CW BAU



CW BHD

FAN SIZE	A	B	BC	BH	C	CC	DB DC	DD DE	DF DG	DH	DX	EF	EH	EW	FE	FF	FG	FH	FJ	FK
360	29.19	23.63	33.75	1.06	31.63	35.63	29.00	33.00	41.50	0.56	2.00	6.97	35.75	48.25	0.88	4	3.22	2.94	20.00	25.00
400	32.19	26.00	37.00	1.06	34.88	38.88	32.00	36.25	46.00	0.56	2.50	7.72	40.00	53.25	1.13	4	4.97	4.38	20.00	25.00
450	35.50	28.75	40.63	1.06	38.50	42.50	35.00	40.00	50.50	0.56	2.50	8.56	43.75	58.88	1.13	5	4.13	3.25	25.00	30.00
490	39.13	31.63	46.00	1.06	42.50	48.50	39.00	44.00	55.00	0.69	2.50	9.44	47.75	64.75	1.13	5	3.44	4.69	25.00	35.00
540	43.25	35.13	50.50	1.06	47.00	53.00	42.75	48.25	59.25	0.69	2.50	10.44	52.38	71.63	1.13	6	3.00	3.94	30.00	40.00
600	47.88	38.75	55.50	1.06	52.00	58.00	47.00	53.00	66.00	0.69	3.00	11.56	58.38	79.25	1.38	7	5.56	3.50	35.00	40.00
660	52.75	42.63	60.75	1.06	57.25	63.25	51.50	57.00	72.00	0.69	3.00	12.75	63.63	87.25	1.38	7	5.50	5.44	35.00	45.00
730	58.19	47.00	67.75	1.06	63.25	71.25	57.00	63.50	79.00	0.69	3.50	14.03	70.63	96.38	1.63	8	5.97	5.38	40.00	50.00
800	64.38	52.00	74.50	1.06	70.00	78.00	63.00	70.00	87.00	0.69	3.50	15.63	77.50	106.63	1.63	9	6.56	5.38	45.00	50.00

FAN SIZE	FN	G	GA		GC	H	HA	HB	HC	HD	HE	HF	HG	HH	J	K	KA	KB	KL
			HIB-20	HIB-24															
360	5	57.00	7	0.25	28.50	60.63	35.13	52.25	38.75	32.44	30.75	29.06	27.38	25.69	17.00	13.81	7.00	4.00	8.25
400	5	61.00	7	0.25	30.50	63.00	38.75	57.81	43.00	35.75	33.94	32.06	30.25	28.38	18.19	15.00	6.00	3.00	9.00
450	6	65.00	7	0.25	32.50	68.75	42.75	63.63	47.25	39.50	37.50	35.44	33.44	31.38	19.56	16.38	6.88	3.88	9.00
490	7	70.00	7	0.25	35.00	75.13	47.00	69.88	51.81	43.50	41.25	39.00	36.75	34.50	21.06	17.81	6.75	4.75	10.00
540	8	76.00	7	0.25	38.00	79.63	52.00	77.13	57.06	48.19	45.69	43.19	40.69	38.19	23.81	19.56	5.88	5.63	10.00
600	8	80.00	0.25	0.25	40.00	84.75	57.50	85.50	63.38	53.25	50.50	47.75	45.00	42.25	25.63	21.38	6.13	5.38	10.75
660	9	85.00	0.25	0.25	42.50	89.63	63.25	93.81	69.44	58.63	55.63	52.56	49.56	46.50	27.56	23.31	6.88	5.13	11.00
730	10	92.00	0.25	0.25	46.00	97.00	69.75	103.69	76.88	64.38	61.38	58.06	54.69	51.38	30.81	25.50	6.50	5.50	11.00
800	10	97.00	0.25	0.25	48.50	106.00	77.13	114.44	84.69	71.56	67.88	64.19	60.50	56.81	33.31	28.00	8.00	6.00	11.75

FAN SIZE	KS		L	M	MA	MD	MF	NH	P	Q	SD		SE	TH
	HIB-24	HIB-20									HIB-20	HIB-24		
360	0.88x0.44	0.75x0.88	10.00	26.50	16.00	23.00	6.50	24	53.81	22.19	2.937	3.437	9.00	0.19
400	1.00x0.50	0.88x0.44	11.00	28.50	18.00	25.00	7.50	32	56.00	24.44	3.437	3.937	10.00	0.19
450	1.00x0.50	0.88x0.44	11.63	30.50	20.00	25.00	8.50	32	60.38	27.00	3.437	3.937	10.00	0.19
490	1.00x0.50	1.00x0.50	13.00	33.00	22.00	27.50	9.50	40	66.31	29.75	3.937	4.437	11.00	0.25
540	1.00x0.50	1.00x0.50	13.00	35.00	24.00	29.50	10.50	40	68.06	32.94	3.937	4.437	11.00	0.25
600	1.25x0.63	1.00x0.50	13.75	37.00	26.00	31.50	11.50	40	72.13	36.44	4.437	4.937	11.75	0.25
660	1.25x0.63	1.00x0.50	14.00	39.50	28.00	34.00	12.50	40	75.31	40.06	4.437	4.937	12.00	0.25
730	1.25x0.63	1.00x0.50	15.00	42.00	30.00	36.50	13.50	48	79.50	44.31	4.437	4.937	12.00	0.31
800	1.25x0.63	1.25x0.63	16.00	44.50	32.00	39.00	14.50	48	86.75	49.00	4.937	5.437	12.75	0.31

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DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Model

HIB

Furnish and install as indicated on the plans, Twin City Fan & Blower Model HIB industrial duty backwardly curved fans.

HOUSING — Fan housings shall be made of a 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 shall be equipped with a pie-shaped split in the casing to permit the impeller and shaft to be removed without disturbing the inlet and outlet ductwork. Casing split must be fully gasketed and bolted together to prevent any leaks. Flanged inlet and outlet, access door, shaft seal and drain shall be provided as standard equipment.

IMPELLER — Blade design shall be backwardly curved for high efficiency and have non-overloading performance characteristics. Blades shall be formed of special alloy material for strength and accuracy of contour and continuously-welded to the impeller inlet cone and back plate. A heavy steel (not cast iron) hub shall be provided. Impellers shall be statically and dynamically balanced on precision electronic machines, as well as balance tuned after complete assembly.

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

BEARINGS — Fans must be supplied with heavy-duty, self-aligning grease or oil lubricated anti-friction bearings to provide long bearing life.

DRIVE — Cast iron, fixed pitch sheaves are recommended for best reliability. Variable pitch sheaves can be provided on applications up through 20 HP when specified. Drives and belts are located external to the fan casing and rated for 150% of the required motor HP.

FINISH AND COATING — The entire fan assembly, excluding the shaft, shall be properly washed and pretreated before application of a rust-preventative primer, if called out on the order. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly, if called out on the order. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminum components shall be unpainted.

ACCESSORIES — When specified, accessories such as belt guards, access doors, companion flanges, variable inlet vanes, outlet dampers, inlet boxes, inlet box dampers, evasés, evasé dampers, shaft coolers, shaft seals, inlet screens, drains, scroll and side liners, 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 the specified operating speed or maximum RPM allowed for the particular construction type. Each impeller shall be statically and dynamically balanced in accordance with ANSI/AMCA 204 “Balance Quality and Vibration Levels for Fans” to Fan Application Category BV-3, Balance Quality Grade G6.3. Vibration measurements shall be taken by electronic type equipment in the axial, vertical and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.

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