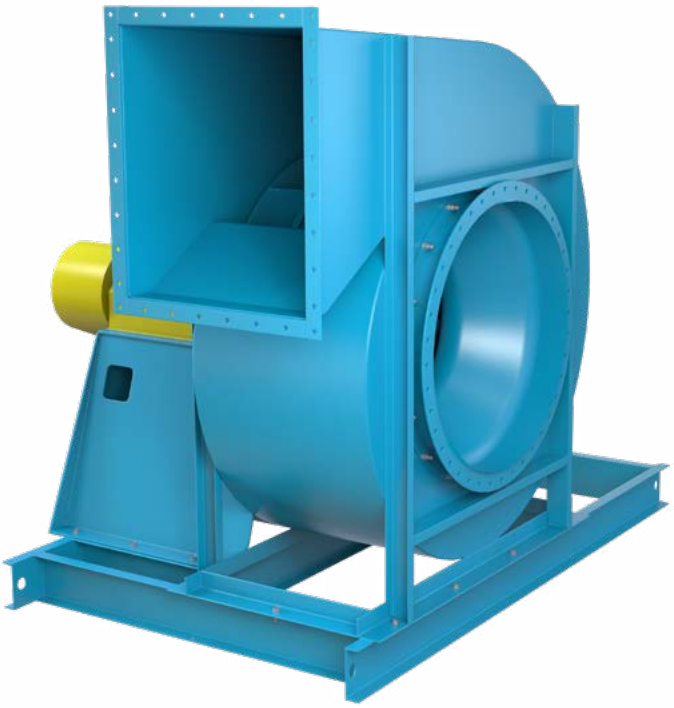
TCF

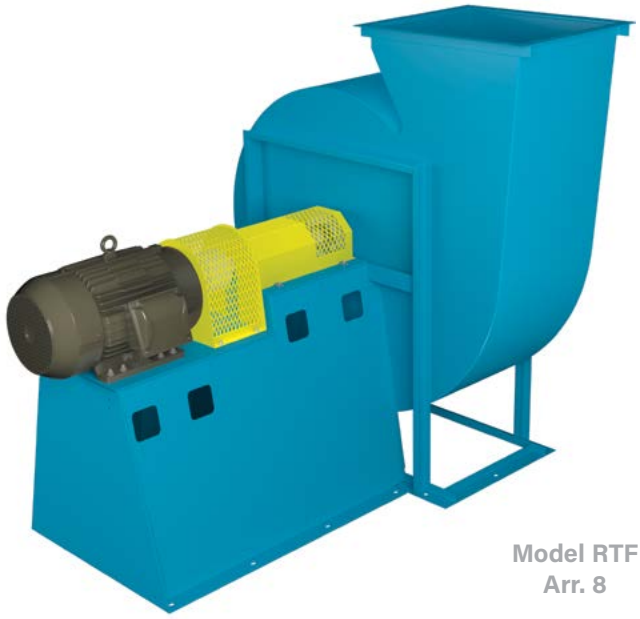
TWIN CITY FAN

INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

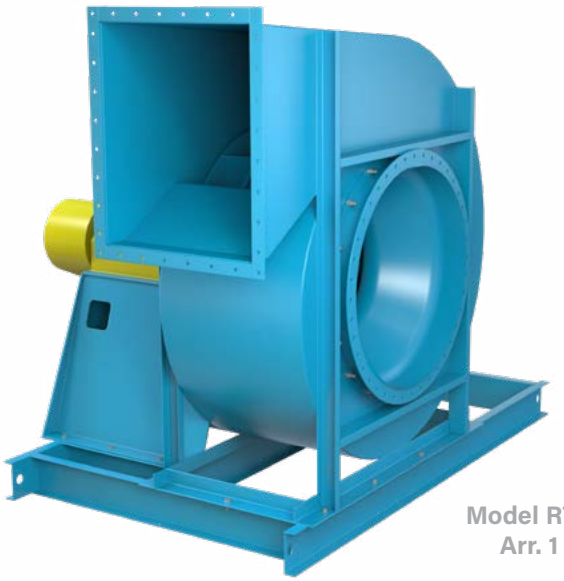
RADIAL TIP FANS

Model RTF





Model RTF
Arr. 8



Model RTF
Arr. 1

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

Overview

RTF

Radial Tip & High Efficiency Fans offer great efficiencies for a wide range of applications requiring high airflow and moderate pressures. The impeller design can handle high temperatures, corrosive airstreams and light particulate where the radial tip designs are better suited for dirty, particulate laden air. With high airflows the radial tip fan is much more efficient than the comparable Radial Blade Fan.

Features

- High efficiency, lower first and operating costs.
- Self-cleaning impeller design.
- Statically and dynamically balanced rotor assembly.
- Heavy-duty, self-aligning, grease lubricated, anti-friction, pillow block bearings.
- Heavy-gauge reinforced housing and bearings pedestal for vibration-free service.

Typical Industries Include

Aerospace, Agriculture, Air Pollution Control, Asphalt, Automotive, Boilers, Brick, Cement, Chemical, Coal, Composting, Ethanol, Foundry, General Manufacturing, Glass, Industrial Processes, Metal & Minerals, Mining, Nuclear, OEM, Petrochemical, Pharmaceutical, Power Generation, Pulp & Paper, Recycling, Textile, Water Treatment

Arrangements

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

Impeller Type

Radial Tip

Optional Construction

Abrasion Resistant Construction, High Temperature Construction, Nominally Leak-Tight Construction, Spark Resistant Construction (Type A, B and C), Special Materials, Special Coatings

Overview

RTF

Model RTF radial tip fans are of a heavy-duty, rugged design, suitable for applications involving large volumes of gas streams at moderate to high pressure. Designed to handle clean or dirty airstreams, they are widely used to exhaust gases from bag-type collectors, precipitators, scrubbers, cyclones and other industrial applications. This type of fan is also used for induced draft on boilers, incinerators and kiln exhaust. Steel, air pollution, dryer, petrochemical, cement, furnaces and ovens, solvent recovery, sewage sludge and solid waste incineration industries have found the Model RTF radial tip design particularly suitable for their applications.

Sizes

20.5 to 90.75 inches (520 mm to 2,305 mm)

Performance

Airflow to 223,800 CFM (380,200 m^3/hour)
Standard fan suitable to 300°F

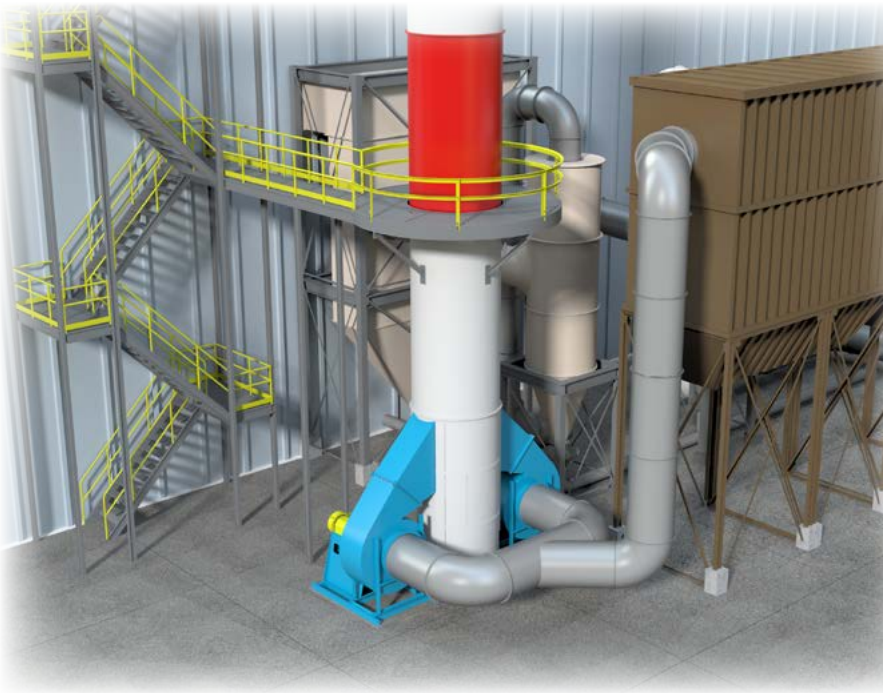
Capabilities

Heavy-duty construction with choice of speed range:

Class 18 — Suitable to 18,000 FPM tip speed
Static pressure to 24" w.g. (6,000 Pa)

Class 23 — Suitable to 23,000 FPM tip speed
Static pressure to 36 inches w.g. (8,950 Pa). Consult factory for higher tip speed designs.

Scrubber Fans



Induced Draft Incinerator Application

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.

CONSTRUCTION FEATURES

Housings

Heavy-gauge, reinforced, continuously-welded housings provide strength and durability for extended service life.

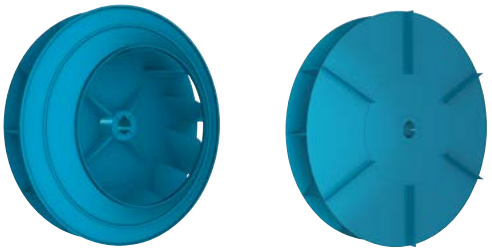
Inlet and outlet flanges for duct connection are standard. All housings are reinforced with rigid bracing to increase structural integrity. The support angles are intermittently welded and caulked between welds to prevent bleed-through corrosion.

Shaft

Shafts are AISI-1018, 1040 or 1045 hot-rolled steel accurately turned, ground, polished and ring-gauged for accuracy. Shafts are generously sized for first critical speed of at least 1.43 times the maximum speed for the class.

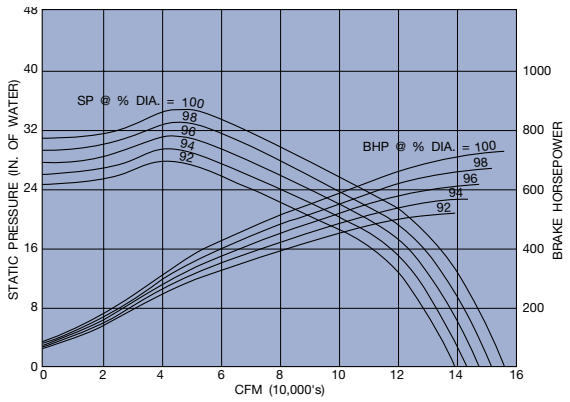
Bearings

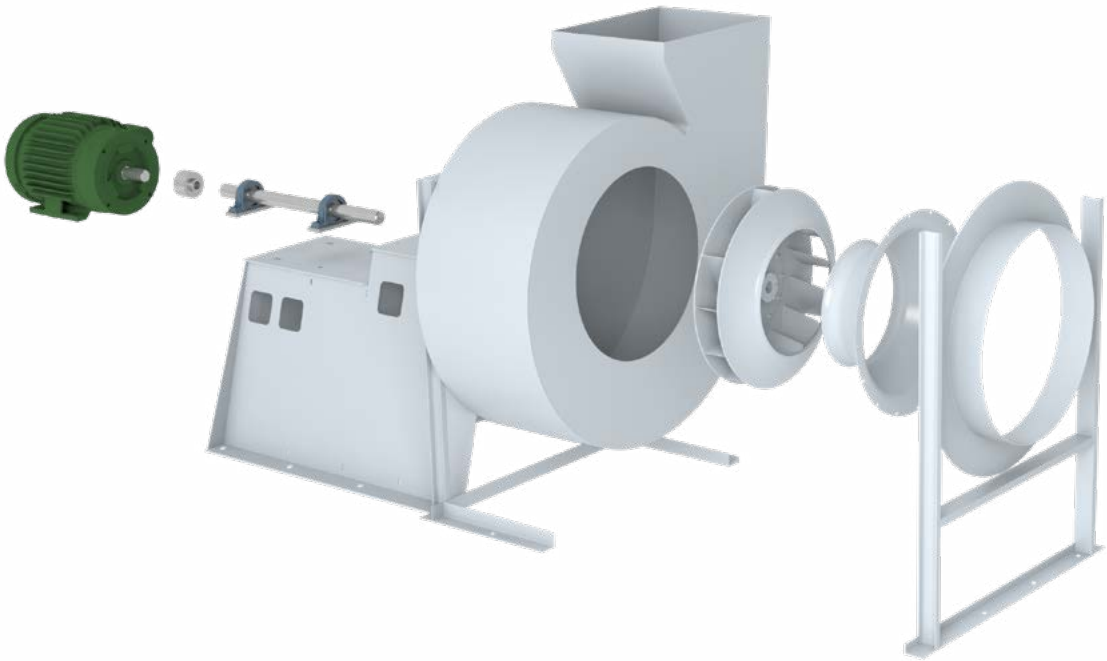
Bearings are heavy-duty, grease-lubricated, anti-friction ball or roller, self-aligning, pillow block type and are selected for minimum average bearing life (AFBMA L-50) in excess of 200,000 hours at the maximum fan RPM.



Typical Performance Curve with Various Diameter Fan Impellers

Size: 600 RPM: 1175 Density: 0.075 lb/ft^3





Spark Resistant Construction

Fan applications may involve the handling of 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 airstream must be made of nonferrous material — usually aluminum and limited to 200°F.

Type B - The fan shall have a nonferrous impeller and nonferrous rub ring about the opening through which the shaft passes — usually aluminum impeller and rub ring and limited to 200°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.

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.

High Temperature Construction

301 to 500°F - Requires addition of shaft cooler and high temperature grease bearings.

501 to 600°F - Above modifications plus high temperature aluminum paint.

601 to 800°F - Above modifications plus modified pedestal design.

Abrasion and Corrosion Resistant Alloys and Coatings

Optional construction includes an abrasion resistant steel blade, back plate, scroll and side or cheek liners. Construction materials include Corten, stainless steel, Monel, aluminum, Hastelloy and other alloys. Construction from heavier than standard gauges is available. Special corrosion resistant coatings of various types are available.

Shaft Cooler & Safety Guard

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Arrangement 1

The usual choice for many V-belt drive applications. Impeller 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 3SI

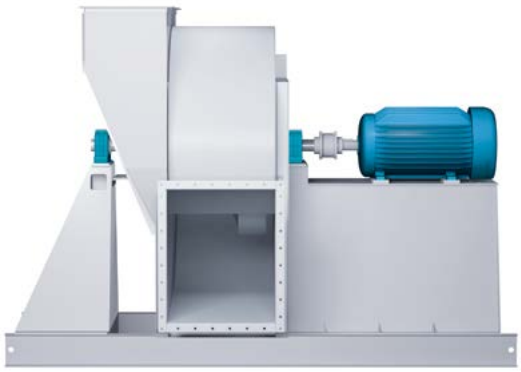
Single-width, single-inlet fan with integral inlet box and two independent bearing pedestals. The impeller is supported between two bearings.

Arrangement 4

Arrangement 4 is available in direct drive only. The fan impeller 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 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 impeller is supported between two bearings.



Arrangement 8

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 impeller is supported between two bearings.

Arrangement 9F

Arrangement 9F is available when an Arrangement 9 requires a motor, which 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

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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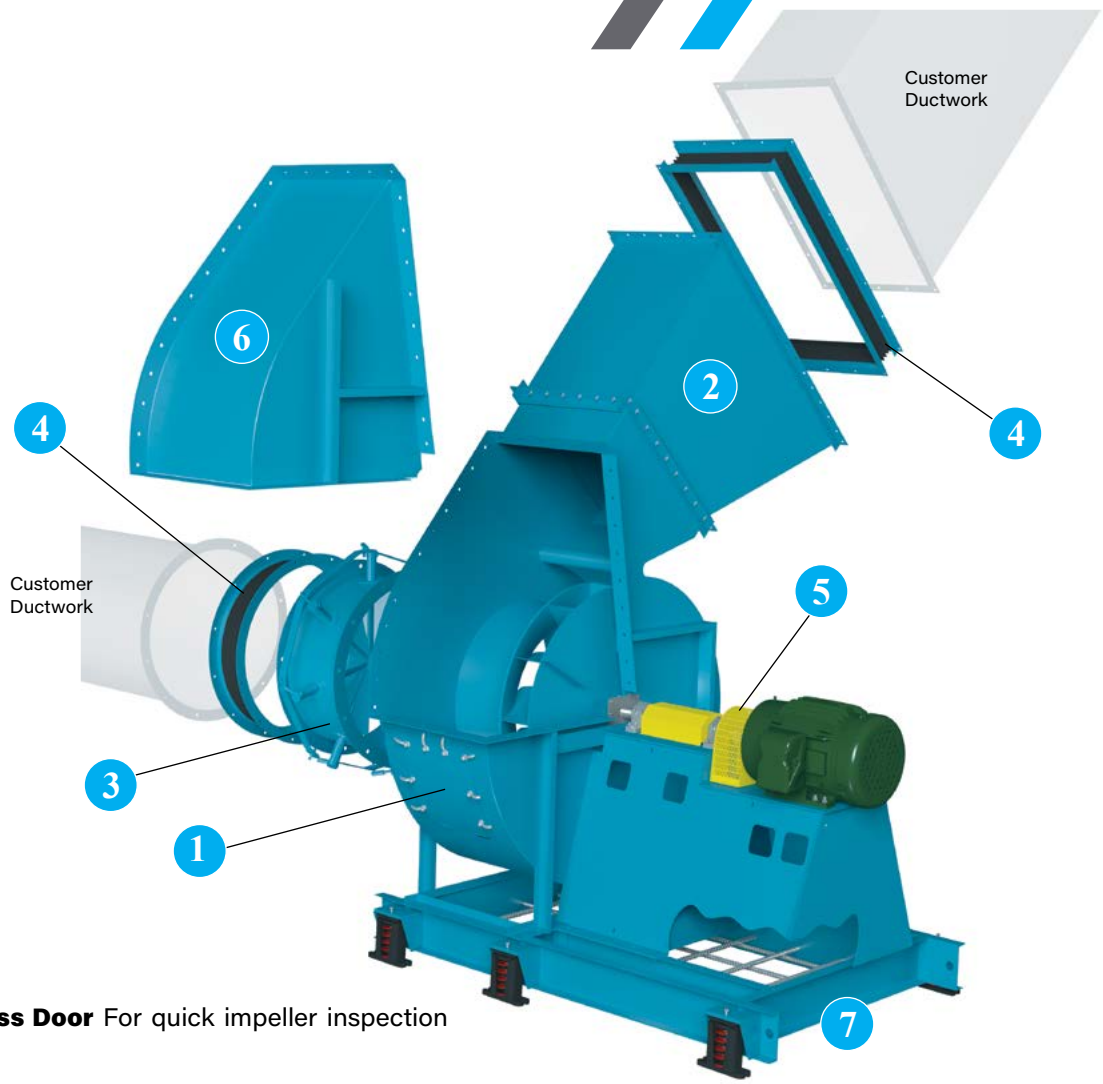
OPTIONS/ACCESSORIES



1 **Quick Open Access Door** For quick impeller inspection and maintenance.

2 **Evasé (Rectangular)** 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.

3 **Inlet Vanes** Used for efficient volume control for part load conditions. Recommended for use in relatively clean air applications. Twin City Fan & Blower offers both space saving nested type (vanes arranged inside the inlet cone) or bolt-on external type (vanes mounted inside a cylindrical housing for bolting to the flange) design. Standard design is suitable for 300°F and clean air. Construction available for temperatures up to 600°F is available.

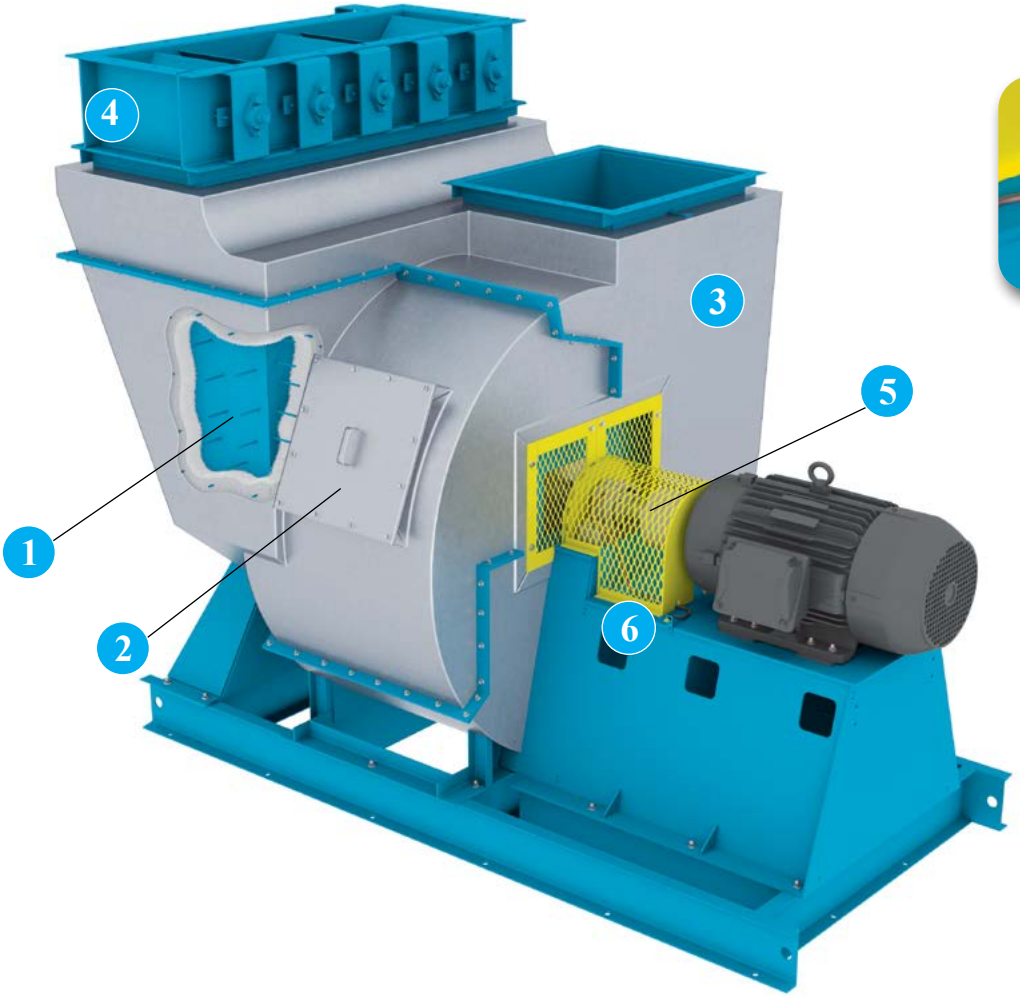
4 **Inlet/Outlet Companion Flanges & Flex Connectors (Round & Rectangular)** Companion flanges are commonly connected to a user's duct for easy installation of flexible connections between the fan and duct. Companion flanges and flex connectors are punched to match the fan's inlet or outlet punching.

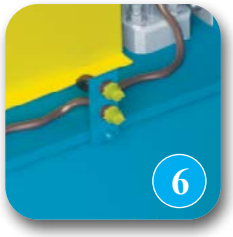
5 **Shaft Guard (Exposed Bearings)** Shaft and bearing guard covers both shaft and bearings from incidental contact. Provided with holes for ease of bearing lubrication. When fan is provided with shaft cooler, guard extends to cover the shaft cooler. Shaft guard covers only the shaft between the bearings exposing the bearing to the ambient conditions.

6 **Pie Split Housing** Available for impeller removal without disturbing inlet or outlet duct. All fans are designed for removal of impellers through inlet as standard. Where access to inlet is limited or for fans with inlet box, pie-shaped split housing is recommended. Other split housing options available. Consult factory for options.

7 **Inertia Base** Provides a common support to fan, motor and drive including guards and utilize heavy-duty structural channel with spring isolators. See further description on page 10.

OPTIONS/ACCESSORIES





Extended Lube Lines

1 **Insulation Pins** Insulation pins are tacked onto the fan housing for customer mounted insulation. Insulation pins, 4" or 6" long, can be provided. Insulation thickness must be specified at the time of order.

2 **4" Raised Access Door** For quick impeller inspection and maintenance. Access doors are specified where examination and cleaning of the fan interior is required.

3 **Aluminum Clad Housing** To insulate the fan surface from high temperature, condensation or sound. Exterior cladding material is 0.040" (minimum) thick stucco-embossed aluminum.

4 **Opposed Blade Outlet Damper** 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.

5 **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.

6 **Extended Lube Lines** Lube lines with grease fittings are extended to the outside of the fan housing on all models.

Other Accessories Include:

- Temperature and Vibration Detectors
- Belt Guards
- Inlet Screens (Flange Mounted)
- Piezometer Ring
- Scroll & Side (Cheek) Liners
- Steel Wall Housings
- Special Width and Special Diameter Impellers
- Inlet Boxes (see page 11)

VIBRATION ISOLATION

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.

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 inlet and outlet are required.

Unitary Bases
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.

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 2405-66 shown below.

Integrated

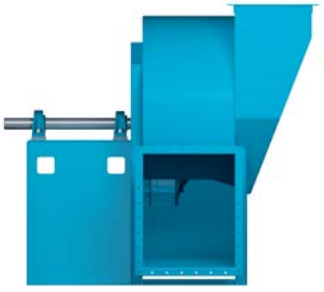
Fan with attached or integral inlet box. Available on Arrangements 1, 4, 8 and 9F. Included on Arrangements 3SI and 7SI.

Detached Bolt-On

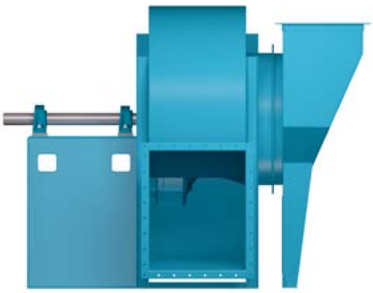
Fan with bolt-on (detached) inlet box (shown with optional subbase). Available on Arrangements 1, 4, 8 and 9F.

Detached Free-Standing

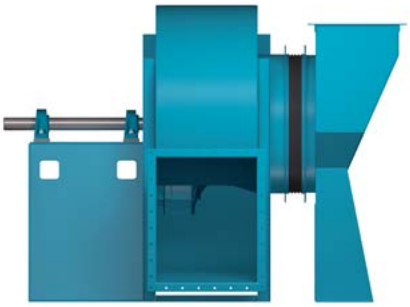
Self-supporting units with independent mounting frames.



Integrated

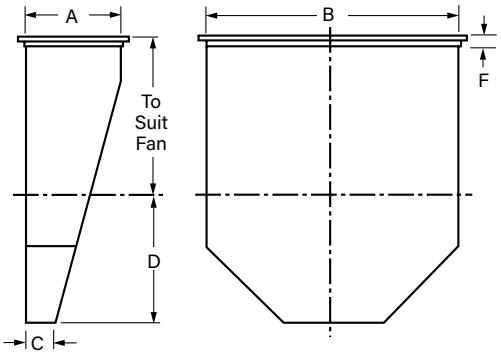


Detached Bolt-On



Detached Free-Standing

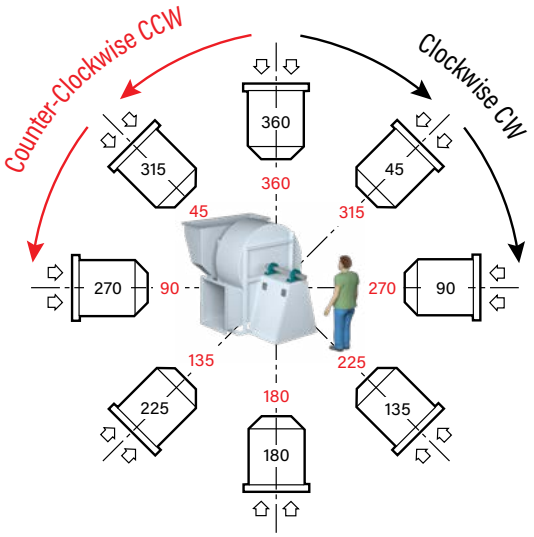
Typical Inlet Box Dimensions



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.

Table 1. Material and Mechanical Specifications

FAN SIZE	DESIGN RTF	SHAFT DIA.	MAX. HP V-BELT DRIVE	MIN. SHEAVE DIA.[1]	MAX. HP DIRECT DRIVE	MAX. RPM [2]	IMPELLER WT. (LB)	IMPELLER			WR² (LB-FT²)	HOUSING	ARR. 1 FAN WT. (LB)
								BACK PLATE	BLADES	SHROUD			
180	18	2.188	30	5.7	40	3342	59	0.25	10 GA.	10 GA.	21	7 GA.	745
	23	2.188	60	5.4	75	3971	70	0.31	10 GA.	10 GA.	22	7 GA.	760
200	18	2.188	40	6.6	75	3026	71	0.25	10 GA.	10 GA.	31	7 GA.	825
	23	2.438	75	5.9	100	3800	84	0.31	10 GA.	10 GA.	36	7 GA.	850
220	18	2.188	50	7.5	60	2723	87	0.25	10 GA.	10 GA.	46	7 GA.	875
	23	2.438	100	6.6	125	3484	103	0.31	10 GA.	10 GA.	55	7 GA.	930
240	18	2.188	60	8.4	75	2476	105	0.25	10 GA.	10 GA.	68	7 GA.	920
	23	2.688	125	7.2	150	3167	125	0.31	10 GA.	10 GA.	81	7 GA.	1000
270	18	2.438	75	9.5	100	2264	128	0.31	10 GA.	10 GA.	90	7 GA.	1100
	23	2.688	150	7.9	150	2892	153	0.31	10 GA.	10 GA.	112	7 GA.	1160
300	18	2.688	100	11.1	150	2052	149	0.31	10 GA.	10 GA.	131	7 GA.	1300
	23	2.938	200	8.7	200	2622	178	0.31	10 GA.	10 GA.	164	7 GA.	1350
330	18	2.688	100	11.4	150	1858	196	0.31	10 GA.	10 GA.	196	7 GA.	1530
	23	2.938	200	9.7	250	2374	231	0.31	10 GA.	10 GA.	243	7 GA.	1580
360	18	2.938	150	12.6	150	1676	248	0.31	10 GA.	10 GA.	326	7 GA.	1950
	23	3.438	250	11.4	300	2143	270	0.31	10 GA.	10 GA.	364	0.25	2330
400	18	3.438	200	12.1	200	1519	352	0.31	10 GA.	7 GA.	532	7 GA.	2450
	23	3.938	250	13.5	400	1942	405	0.38	10 GA.	7 GA.	639	0.25	2870
450	18	3.438	200	14.7	250	1375	408	0.31	10 GA.	7 GA.	781	7 GA.	2980
	23	3.938	250	11.5	500	1757	510	0.38	10 GA.	7 GA.	1042	0.25	3540
490	18	3.938	250	14.2	300	1247	537	0.38	7 GA.	7 GA.	1343	7 GA.	3790
	23	4.438	400	14.1	600	1573	667	0.50	7 GA.	7 GA.	1741	0.25	4370
540	18	3.938	250	17.2	400	1127	756	0.38	7 GA.	0.25	2140	7 GA.	4660
	23	4.438	400	17.4	700	1440	890	0.50	7 GA.	0.25	2694	0.25	5480
600	18	4.438	300	17.7	400	1019	1041	0.50	0.25	0.25	3942	0.25	6360
	23	4.938	400	15.6	800	1302	1108	0.50	0.25	0.25	4276	0.25	6520
660	18	4.438	300	21.0	500	926	1222	0.50	0.25	0.25	5717	0.25	7280
	23	4.938	400	18.6	1000	1183	1522	0.63	0.25	0.25	7333	0.25	7710
730	18	4.438	300	24.6	600	838	1484	0.50	0.25	0.25	8483	0.25	8840
	23	4.938	400	21.6	1200	1071	1847	0.63	0.25	0.25	11020	0.25	9350
8003	18	4.938	400	25.7	700	758	1769	0.50	0.25	0.25	12645	0.25	8660
	23	5.438	400	19.6	1400	968	2216	0.63	0.25	0.25	16426	0.25	9370

[1] Minimum fan diameter when using maximum HP motor. Check with the factory on applications over 300 HP.
[2] Maximum RPM shown are for 70°F. For higher temperatures use Table 2 below to derate RPM.
[3] Size 800 RTF is not supplied with conventional bearings pedestal. Instead we supply channel subbases. The subbase is to be mounted on concrete pedestal with steel sole plate in the field. Fan weights include weight of channel subbase.

Dimensions are in inches unless otherwise noted.

Derating Factors For High Temperature

When elevated temperatures are encountered, the maximum RPM allowable as shown in Table 1 above must be derated according to the derating factors from Table 2. Standard steel construction is suitable for use in gas temperatures to 800°F. Aluminum impellers are suitable for temperatures to 250°F only.

Table 2. Temperature Derating Factors

TEMP. (°F)	DERATING FACTOR	
	STANDARD STEEL	STAINLESS STEEL
70	1.000	1.000
200	0.990	0.950
300	0.975	0.916
400	0.955	0.877
500	0.930	0.841
600	0.904	0.809
700	0.880	0.777
800	0.837	0.754

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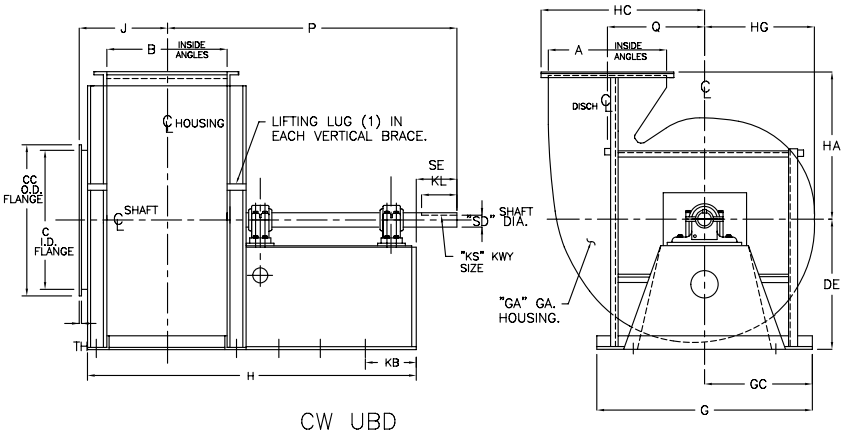
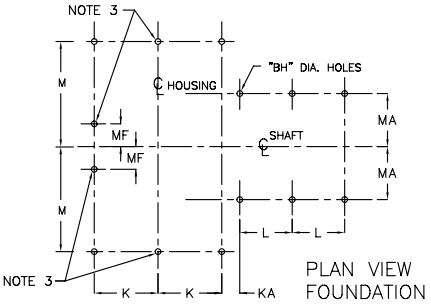
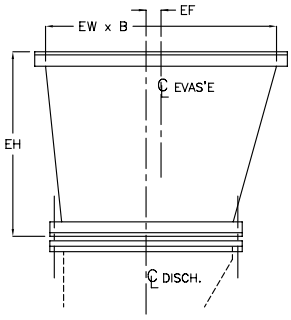
Arrangement 1, SWSI



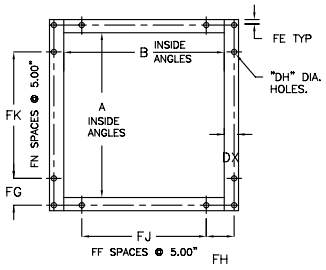
CW UBD



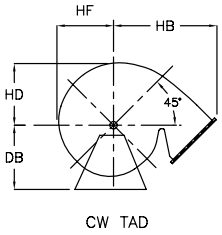
PLAN VIEW FOUNDATION



EVAS'E (OPTIONAL)



OUTLET FLANGE DETAIL



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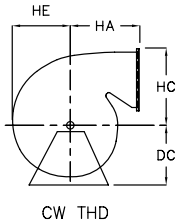

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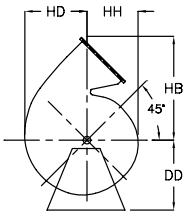
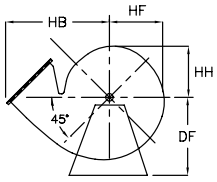
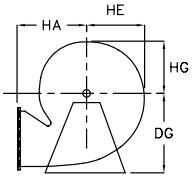


CW TAU



CW BAU



CW BHD

FAN SIZE	A	B	BH	DB DC	DD DE	DF DG	DX	EF	EH	EW	FE	FF	FG	FH	FJ	FK	FN	G	GA	GC	H	HA	HB
180	14.81	12.00	0.81	15.00	17.25	20.75	1.50	3.28	18.00	23.75	0.63	2	3.28	1.88	10.00	10.00	2	31.13	7	15.56	39.00	17.81	26.63
200	16.19	13.13	0.81	17.00	18.75	22.50	1.50	3.66	19.50	26.00	0.63	2	3.97	2.44	10.00	10.00	2	33.50	7	16.75	41.13	19.50	29.13
220	17.94	14.56	0.81	18.50	20.75	24.75	1.50	4.16	21.75	29.25	0.63	2	4.84	3.16	10.00	10.00	2	36.00	7	18.00	44.13	21.63	32.19
240	19.69	16.00	0.81	20.25	22.50	27.00	1.50	4.66	24.00	32.25	0.63	2	5.72	3.88	10.00	10.00	2	38.38	7	19.19	46.50	23.69	35.25
270	21.75	17.63	0.81	22.50	25.00	31.25	1.50	5.28	26.25	35.69	0.63	2	4.25	4.69	10.00	15.00	3	42.75	7	21.38	49.38	26.13	38.81
300	23.94	19.38	0.81	24.75	27.50	34.00	1.50	5.81	29.00	39.31	0.63	3	5.34	3.06	15.00	15.00	3	47.25	7	23.63	52.38	28.75	42.63
330	26.38	21.38	0.81	27.00	30.00	37.50	2.00	6.41	32.00	43.44	0.88	3	4.31	4.31	15.00	20.00	4	50.75	7	25.38	55.38	31.75	47.31

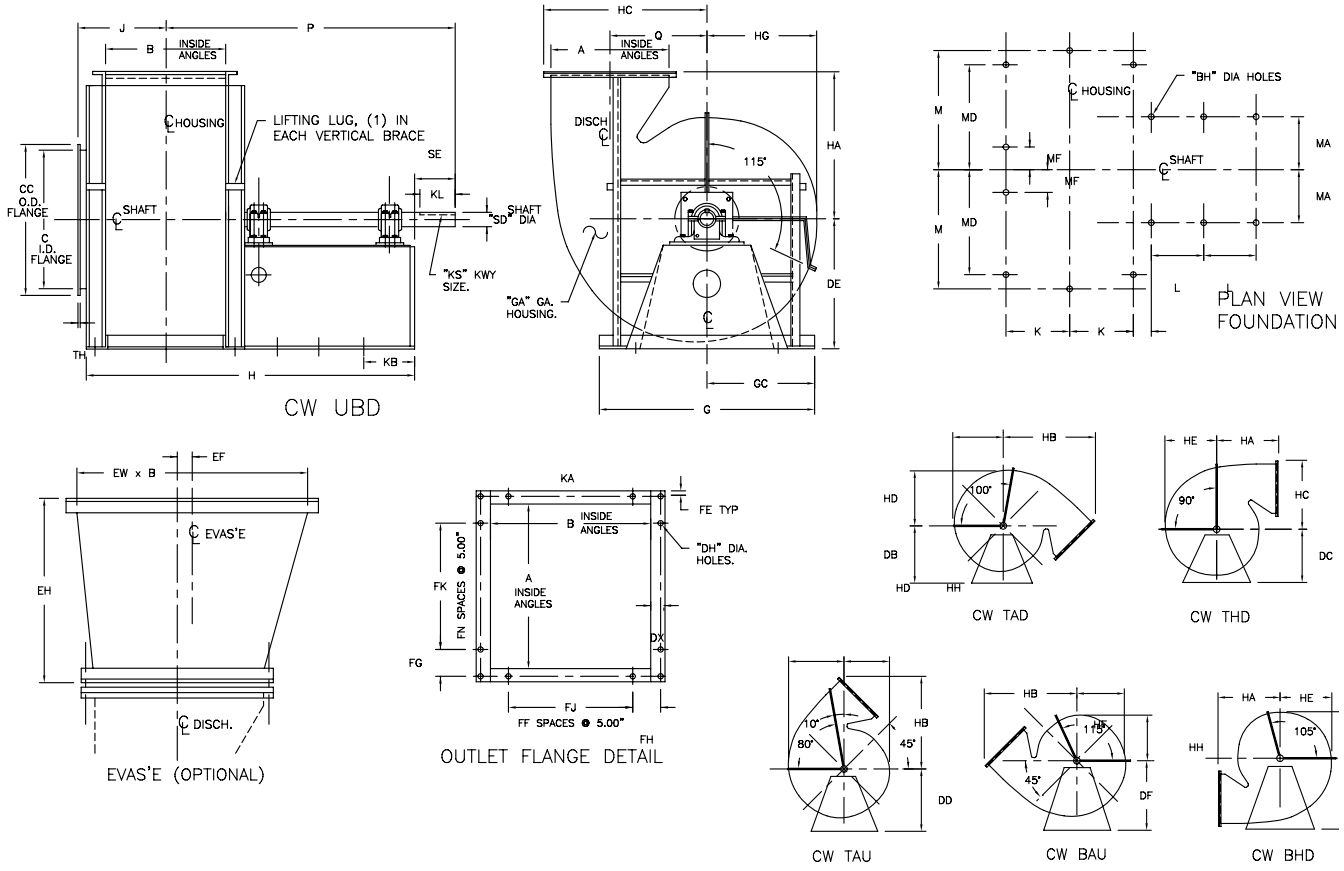
FAN SIZE	HC	HD	HE	HF	HG	HH	J	K	KA	KB	KL	KS		L	M	MA	MF	P	Q	SD		SE
												CL 18	CL 24							CL 18	CL 24	
180	19.94	16.31	15.50	14.63	13.81	12.94	10.19	7.63	3.38	2.00	6.00	0.50 x 0.25	0.50 x 0.25	8.50	14.19	8.50	—	37.00	11.06	2.19	2.19	7.00
200	21.75	17.88	16.94	16.00	15.13	14.19	10.75	8.19	3.38	2.00	6.50	0.50 x 0.25	0.63 x 0.31	9.00	15.38	9.50	—	39.06	12.19	2.19	2.44	7.50
220	23.94	19.81	18.81	17.75	16.75	15.75	11.50	8.94	4.38	2.00	7.00	0.50 x 0.25	0.63 x 0.31	9.25	16.63	11.00	—	41.81	13.50	2.19	2.44	8.00
240	26.19	21.81	20.69	19.56	18.44	17.31	12.19	9.63	4.38	2.00	7.00	0.50 x 0.25	0.63 x 0.31	9.75	17.81	12.00	—	43.50	14.88	2.19	2.69	8.00
270	28.75	24.06	22.81	21.63	20.31	19.13	13.00	10.44	5.13	2.00	7.50	0.63 x 0.31	0.63 x 0.31	10.00	20.00	14.00	6.50	45.81	16.38	2.44	2.69	8.25
300	31.56	26.56	25.19	23.81	22.44	21.13	13.88	11.31	6.38	2.00	8.00	0.63 x 0.31	0.75 x 0.38	10.00	22.25	14.50	7.38	48.44	18.13	2.69	2.94	8.75
330	35.13	29.31	27.81	26.31	24.81	23.31	14.88	12.31	7.38	2.00	8.25	0.63 x 0.31	0.75 x 0.38	10.00	24.00	15.00	8.00	50.69	19.94	2.69	2.94	9.00

BC9987D

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

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

Arrangement 1, SWSI



FAN SIZE	A	B	BH	DB DC	DD DE	DF DG	DX	EF	EH	EW	FE	FF	FG	FH	FJ	FK	FN	G	SD		GC	H	HA	HB
																			CL 18	CL 24				
360	29.19	23.63	1.06	29.00	33.00	41.50	2.00	6.97	35.75	48.25	0.88	4	3.22	2.94	20.00	25.00	5	57.00	7	0.25	28.50	60.63	35.13	52.25
400	32.19	26.00	1.06	32.00	36.25	46.00	2.50	7.72	40.00	53.25	1.13	4	4.97	4.38	20.00	25.00	5	61.00	7	0.25	30.50	63.00	38.75	57.81
450	35.50	28.75	1.06	35.00	40.00	50.50	2.50	8.56	43.75	58.88	1.13	5	4.13	3.25	25.00	30.00	6	65.00	7	0.25	32.50	68.75	42.75	63.63
490	39.13	31.63	1.06	39.00	44.00	55.00	2.50	9.44	47.75	64.75	1.13	5	3.44	4.69	25.00	35.00	7	70.00	7	0.25	35.00	75.13	47.00	69.88
540	43.25	35.13	1.06	42.75	48.25	59.25	2.50	10.44	52.38	71.63	1.13	6	3.00	3.94	30.00	40.00	8	76.00	7	0.25	38.00	79.63	52.00	77.13
600	47.88	38.75	1.06	47.00	53.00	66.00	3.00	11.56	58.38	79.25	1.38	7	5.56	3.50	35.00	40.00	8	80.00	0.25	0.25	40.00	84.75	57.50	85.50
660	52.75	42.63	1.06	51.50	57.00	72.00	3.00	12.75	63.63	87.25	1.38	7	5.50	5.44	35.00	45.00	9	85.00	0.25	0.25	42.50	89.63	63.25	93.81
730	58.19	47.00	1.06	57.00	63.50	79.00	3.50	14.03	70.63	96.38	1.63	8	5.97	5.38	40.00	50.00	10	92.00	0.25	0.25	46.00	97.00	69.75	103.69
800	64.38	52.00	1.06	63.00	70.00	87.00	3.50	15.63	77.50	106.63	1.63	9	6.56	5.38	45.00	55.00	11	97.00	0.25	0.25	48.50	106.00	77.13	114.44

FAN SIZE	HC	HD	HE	HF	HG	HH	J	K	KA	KB	KL	KS		L	M	MA	MD	MF	P	Q	SD		SE
												CL 18	CL 24								CL 18	CL 24	
360	38.75	32.44	30.75	29.06	27.38	25.69	17.00	13.81	7.00	4.00	8.25	0.75 x 0.38	0.88 x 0.44	10.00	26.50	16.00	23.00	6.50	53.81	22.19	2.94	3.44	9.00
400	43.00	35.75	33.94	32.06	30.25	28.38	18.19	15.00	6.00	3.00	9.00	0.88 x 0.44	1.00 x 0.50	11.00	28.50	18.00	25.00	7.50	56.00	24.44	3.44	3.94	10.00
450	47.25	39.50	37.50	35.44	33.44	31.38	19.56	16.38	6.88	3.88	9.00	0.88 x 0.44	1.00 x 0.50	11.63	30.50	20.00	25.00	8.50	60.38	27.00	3.44	3.94	10.00
490	51.81	43.50	41.25	39.00	36.75	34.50	21.06	17.81	6.75	4.75	10.00	1.00 x 0.50	1.00 x 0.50	13.00	33.00	22.00	27.50	9.50	66.31	29.75	3.94	4.44	11.00
540	57.06	48.19	45.69	43.19	40.69	38.19	23.81	19.56	5.88	5.63	10.00	1.00 x 0.50	1.00 x 0.50	13.00	35.00	24.00	29.50	10.50	68.06	32.94	3.94	4.44	11.00
600	63.38	53.25	50.50	47.75	45.00	42.25	25.63	21.38	6.13	5.38	10.75	1.00 x 0.50	1.25 x 0.63	13.75	37.00	26.00	31.50	11.50	72.13	36.44	4.44	4.94	11.75
660	69.44	58.63	55.63	52.56	49.56	46.50	27.56	23.31	6.88	5.13	11.00	1.00 x 0.50	1.25 x 0.63	14.00	39.50	28.00	34.00	12.50	75.31	40.06	4.44	4.94	12.00
730	76.88	64.38	61.38	58.06	54.69	51.38	30.81	25.50	6.50	5.50	11.00	1.00 x 0.50	1.25 x 0.63	15.00	42.00	30.00	36.50	13.50	79.50	44.31	4.44	4.94	12.00
800	84.69	71.56	67.88	64.19	60.50	56.81	33.31	28.00	8.00	6.00	11.75	1.25 x 0.63	1.25 x 0.63	16.00	44.50	32.00	39.00	14.50	86.75	49.00	4.94	5.44	12.75

BC9986F

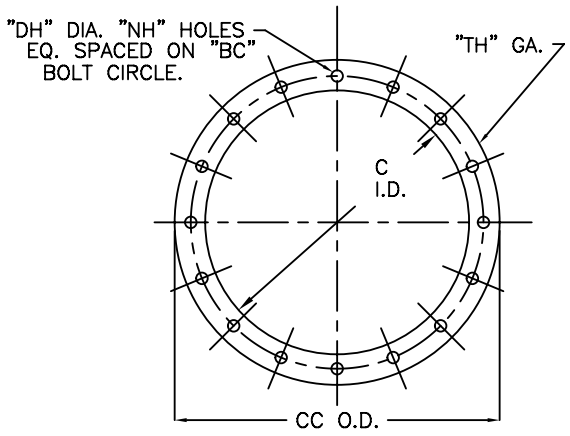
NOTES:
1. CW rotation shown, CCW rotation is similar but opposite.
2. Size 800 will be supplied with channel subbase to be mounted on concrete pedestal in the field.
3. Standard accessories: bolted access door, housing drain, pie split housing, shaft seal, punched inlet & outlet flanges.

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

Inlet Flange

FAN SIZE	BC	C	CC	DH	NH	TH
180	18.00	15.75	19.75	0.56	12	0.19
200	19.75	17.50	21.50	0.56	12	0.19
220	21.50	19.25	23.25	0.56	12	0.19
240	23.25	21.00	25.00	0.56	16	0.19
270	25.75	23.50	27.50	0.56	16	0.19
300	28.00	25.75	29.75	0.56	16	0.19
330	30.75	28.50	32.50	0.56	16	0.19
360	33.75	31.63	35.63	0.56	24	0.19
400	37.00	34.88	38.88	0.56	32	0.19
450	40.63	38.50	42.50	0.56	32	0.19
490	46.00	42.50	48.50	0.69	40	0.25
540	50.50	47.00	53.00	0.69	40	0.25
600	55.50	52.00	58.00	0.69	40	0.25
660	60.75	57.25	63.25	0.69	40	0.25
730	67.75	63.25	71.25	0.69	48	0.31
800	74.50	70.00	78.00	0.69	48	0.31

AC10520C



INLET FLANGE
DETAIL

TCF
TWIN CITY FAN

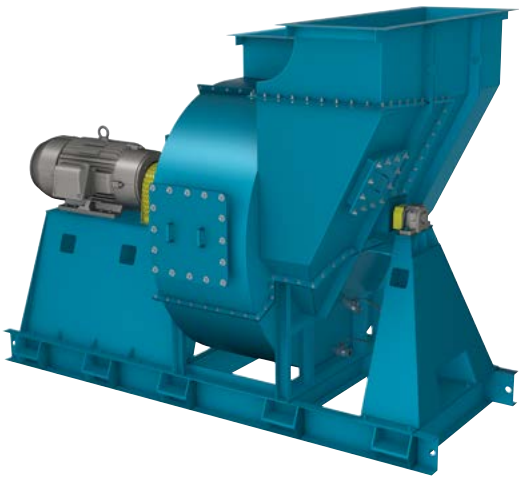
Alternative Radial Tip Fans

Model

HRT (High Specific Speed)

Sizes (impeller diameters)
27 to 80.75 inches (685 mm to 2,055 mm)

Performance
Airflow to 254,700 CFM (432,700 m^3/hour)
Static pressure to 32 inches w.g. (7,960 Pa)



See Catalog 980 for more information

Model

RTF

Fans shall be Model RTF Radial Tip Fans as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory.

HOUSING — Housings shall be made of heavy-gauge steel with continuously-welded construction and braced with structural shapes to eliminate any resonant vibration and to provide smooth operation. Size 360 and larger housings shall have a pie-shaped split for easy impeller and shaft removal without disturbing inlet and outlet ductwork. The housing split must be fully gasketed and bolted together to prevent any leaks. Flanged inlet and outlet, inspection door, shaft seal and drain shall be provided as standard equipment. Bearing support members shall be fabricated of heavy steel shapes or made of concrete to insure maximum rigidity.

IMPELLER — Blade design shall be curved forward at the entering edge to meet air at the correct angle of entry for high efficiency and radial at the tip of the leaving edge to provide a self-cleaning characteristic. Blades shall be formed from high strength low alloy material for strength and accuracy of contour and continuously-welded to the inlet shroud and back plate. A heavy fabricated steel hub shall be provided. All impellers shall be statically and dynamically balanced on precision electronic machines, as well as trim balanced during the factory test run.

SHAFT — Shafts shall be AISI 1040 or 1045 hot rolled steel, accurately turned, ground, polished and ring-gauged for accuracy. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed.

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. Bearings may be ball or roller with non-split pillow block or spherical roller bearings with split pillow block housings (bearing races not split). Where required, sleeve bearings may be used with appropriate cooling method for high carrying loads.

DRIVE — Motor sheaves shall be cast iron, variable pitch on applications 20 HP and smaller, and fixed pitch on 25 HP and larger. Drives and belts shall be 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 shall be provided by Twin City Fan & Blower to maintain one source responsibility.

FACTORY RUN TEST — 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. Balance readings 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.


TCF
TWIN CITY FAN

INDUSTRIAL PROCESS AND COMMERCIAL VENTILATION SYSTEMS

CENTRIFUGAL FANS | UTILITY SETS | PLENUM & PLUG FANS | INLINE CENTRIFUGAL FANS
MIXED FLOW FANS | TUBEAXIAL & VANEAXIAL FANS | WALL MOUNTED FANS | 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

TCF
TWIN CITY FAN

TWIN CITY FAN & BLOWER
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