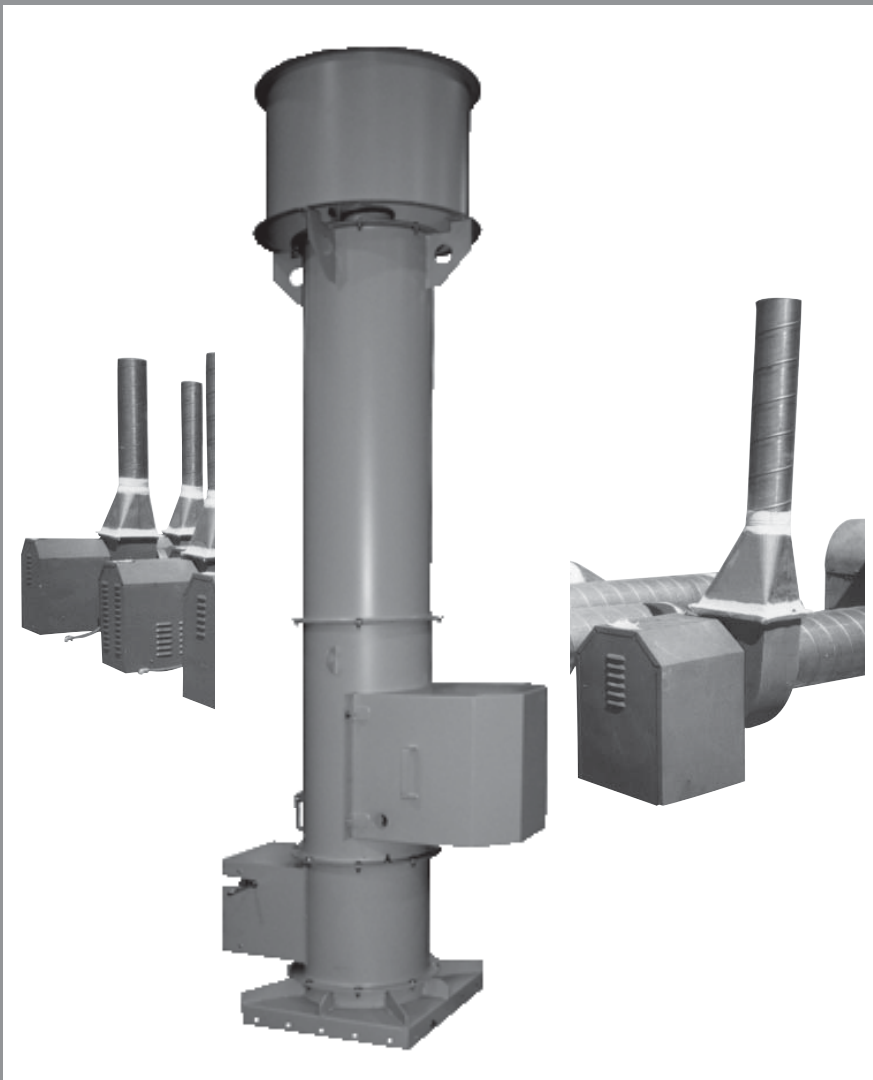


# Twin City Fan & Blower

## *FUME HOOD EXHAUST FANS*



# Fume Hood Exhaust Fans

Fume hood exhaust fans manufactured by Twin City Fan & Blower are the ideal choice for successfully removing undesirable fumes and gases from laboratory hoods, kitchen hoods, process operations, foundry operations and many other applications. Fume hood exhaust fans are not intended as substitutes for proper pollution control equipment, but rather a means to exhaust low concentrations of potentially toxic fumes out of and away from occupied spaces.

With Twin City Fan & Blower's fume hood exhaust fans, the technology of high velocity and high dilution discharge can be applied to a variety of our standard air moving products, with many sizes to choose from, in

direct drive or belt driven units. These choices exist in a broad line of AMCA certified, high quality air moving equipment.

Twin City Fan & Blower offers a specially modified version of the TSL fan, the TFE, for laboratory fume hood exhaust applications. With slight modifications, the following fans are also suited for fume hood service: TSL, JRW, CIW, BCV, BCJ and RBA. Typical applications include research/development, petrochemical, pharmaceutical, hospital/medical, biotech, industrial processes, and school and university laboratories. Use the following chart as a guide in selecting the proper fume hood exhaust fan.

TWIN CITY PRODUCT	WHEEL TYPE	CFM RANGE	MAX. SP	MAX. TEMP. (°F)	APPLICATION					SPEC. COAT.	SPEC. MAT	
					R'SRCH LAB	KITCH. HOOD	PLATING PROCESS	SOLVENT DIP	WELD EXH'ST		ALUM	303
TSL Tubuar Centrifugal	BI 122-150 AF 182-542	750 To 82,000	9"	160°	✓		✓	✓		✓	✓	
TFE Tubular Fume Exhaust	BI 122-150 AF 182-300	400 To 3,500	7"	160°	✓		✓	✓	✓	✓	✓	
JRW Compact Industrial	Radial With Backplate	84 To 1,500	14"	250° Cast Alum.; 600° Nickel/Bronze	✓		✓		✓	✓	✓	
CIW Cast Iron Industrial	Radial With Backplate	20 To 1,100	6"	300°	✓		✓	✓	✓	✓	✓	
BCV Backward Inclined Vent Set	Backward Inlined	500 To 31,000	5"	500°	✓	✓	✓	✓	✓	✓	✓	
HBA Radial Bladed Air Handling Industrial	Radial Air Handling	270 To 15,000	22"	600°	✓		✓	✓	✓	✓	✓	
QSL												
QFE												

BI = Backward Inclined Non-overloading Style Wheels

AF = Airfoil Non-overloading Style Wheels

## Criteria for Selecting Fume Hood Exhaust Fans

There are many site-specific factors that affect the discharge profile and dispersion of rooftop exhaust systems. Some of the factors that must be considered are:

- Prevailing wind direction and speed
- Building height
- Nearby buildings and terrain
- Exhaust discharge height and velocity
- Other roof structures
- Location of air intakes

ASHRAE recommends that a building profile study of the site be conducted to determine how these factors will affect the design of the fume exhaust system.

In addition, local and national codes and various agencies and trade associations have established some general guidelines for fume hood exhaust fans.

1. ASHRAE recommends a minimum of 2500 FPM discharge velocity, and a minimum of 84" discharge height. (ASHRAE Handbook-Fundamentals, 1993 CH14 & NFPA Std. 45, 1991)
2. ANSI/AIHA recommends a minimum discharge velocity of 3000 FPM and minimum discharge height of 120" above the roof line. (ANSI/AIHA Std. Z9.5, 1992)

It is the intent of these recommendations that the fans discharge in a manner and location to avoid reentry of exhaust fumes into the building or adjacent buildings. To achieve a suitable discharge velocity, nozzles are bolted either to the fan outlet or to the top of the stack.

he the fume hood to vary the opening area and volume of air the hood exhausts. There are three methods usually used to achieve this.

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1. **Hood Bypass** — As the fume hood is closed, a bypass normally located at the top of the hood opens to allow room air to be vented.
2. **Common Plenum** — Large low pressure fans exhaust a mixture of exhaust fumes and outside air from a common plenum or manifold. The flow rate at the hoods is controlled either by variable speed exhaust or dampers in the hood discharge duct.
3. **Single Fan Bypass** — High velocity upblast exhaust fans for each hood are mounted on a dampered outside air bypass box which opens when the hood sash is closed.

Twin City Fan & Blower can provide fume hood exhaust fans for any of the above mentioned arrangements.

Exhaust fans handling perchloric acid fumes require special considerations. Perchloric acid is very corrosive and is potentially unstable. For these reasons, Twin City Fan & Blower recommends, as a minimum, that the fans used in perchloric acid applications be supplied with the following accessories:

- AMCA “B” spark resistant construction
- Inlet flange
- Discharge flange
- Stainless steel spray nozzle in fan inlet
- Oversize drain connection
- Special coating on all airstream parts: Teflon, Kynar (Dykor) or other suitable coating
- Explosion proof motor

NOTE: The duct system may require additional spray nozzles and drains for complete washdown.

Other applications which may require special consideration are:

- Biological agents
- Radioactive material

## Special Selection Criteria For Perchloric Acid Exhaust Applications

## JRW Compact Design Fan

The Type JRW fan was developed for reliability, efficiency, durability, ease of maintenance and compactness for

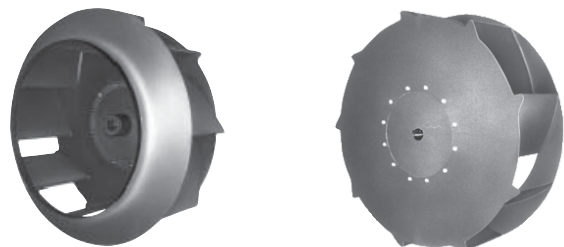
# TSL Tubular Centrifugal Inline Fans

The TSL is a straight-line centrifugal flow fan. This fan has the reliable performance of a centrifugal fan with the space saving advantages of an axial type fan. Because of a recent redesign of the product, the new TSL has many improvements. The redesigned TSL offers higher efficiencies in the commonly selected area. The TSL has a higher and broader efficiency range compared to competitive tubular fans and square inline fans. Lower operating speed for a given performance provides longer and more reliable operation. Also, higher efficiency leads to quieter operation. The unique wheel design allows air to flow with a minimum of turbulence and losses. Extra wide blade design delivers a larger air volume. Relocation of bearings and drive components increases the bearing life. A removable discharge cone facilitates maintenance and service. Applications with larger motors utilize a pivot-style motor base for ease of belt tension adjustments. TSL fans are offered in full AMCA Class I, II and III construction. For TSL fume hood performance, use TSL Bulletin 1001 performance tables.



## TSL Wheel

The TSL Tubular Centrifugal Fan employs a specially designed non-overloading airfoil wheel. In a tubular centrifugal fan, the air turns 90° after leaving the wheel. Twin City Fan & Blower’s unique wheel design with open back plate (patent #5,171,128) allows this turn to be made with a minimum of turbulence and loss. Also, the extra wide blade design helps deliver a larger air volume for a given wheel diameter. The TSL wheel improves overall efficiency and reduces overall sound levels.



# TFE Fume Hood Inline Exhaust Fans

Twin City Fan & Blower offers a specially modified version of the TSL fan designated as "TFE" (Tubular Fume Exhaust) for laboratory fume hood exhaust applications, available in sizes 122 through 300. The TFE fan consists of a vertically mounted TSL unit with a reinforced curb cap and a modified discharge cap. The discharge cap includes an outlet venturi to permit the outlet velocity to meet the specific roof exhaust requirements. TFE fans in a standard configuration utilize an extended discharge with optional stack extensions available. The heavy-duty curb cap will permit stack extensions up to 10 feet (120 inches) total height from the roof line without need for guide wires.

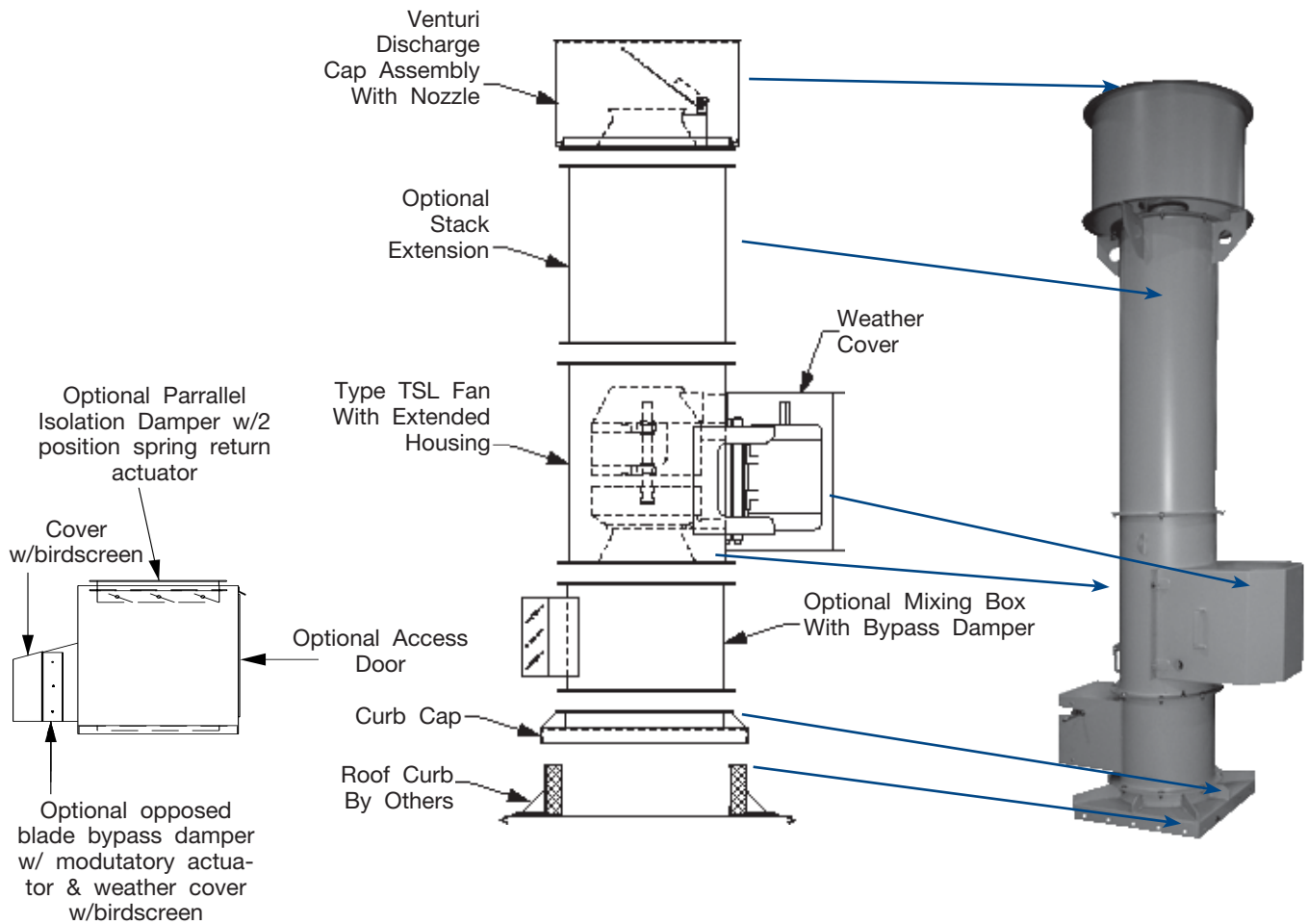
For TFE performance, find the TSL performance from the tables in Twin City Fan & Blower Bulletin 1001, then use the correction factor from the table on page 5 of this bulletin to adjust for the static pressure drop through the venturi-type discharge cap.

## Standard Product Features

- Backward inclined flat and airfoil wheel designs
- Wheel diameters from 12" through 30". Partial width wheels for sizes 12" are used for low airflow requirements.
- Discharge venturi cap
- Heavy duty coated steel curb cap
- Access door
- Shaft seal
- Weather cover

## Optional Features

- Stack between fan and discharge venturi cap
- Galvanized heavy-duty curb cap
- Mixing box with bypass damper
- AMCA "A", "B" or "C" spark resistant construction
- Special coatings
- Special materials of construction
- Isolation Dampers
- Contact factory for common mixing plenum boxes
- Hinged weather cover



# TFE Selection

## Correcting TSL Performance for the Static Pressure Loss of the TFE Venturi Cap Assembly

Select a fan based on 3900 CFM, 2500 FPM minimum discharge velocity and 2.0 in. W.G. static pressure.

- Given desired OV 2500 FPM:

$$X = \frac{\text{CFM}}{\text{OV}} = \frac{3900 \text{ CFM}}{2500 \text{ FPM}} = 1.56 \text{ sq.ft.}$$

- Find the nozzle size with an area closest to X (round down unless X is within 10% of cap size). From the chart below the nozzle size selected is a size C16.
- Find the possible fan sizes from table below and note their static pressure loss.
  - 150C16 = 0.23 in. W.G.
  - 182C16 = 0.32 in. W.G.
  - 200C16 = 0.34 in. W.G.
  - 222C16 = 0.36 in. W.G.
- Once the static pressure loss of the venturi cap

assembly for each fan is determined, the required RPM and BHP for the desired fan must be recalculated. For example, if a size TFE 150C16 is selected, you would need to refer to the TSL 150 performance table (Bulletin 1001) and recalculate the required RPM and BHP to meet:

$$3900 \text{ CFM} \quad 2.23 \text{ SP (corrected) in. W.G.}$$

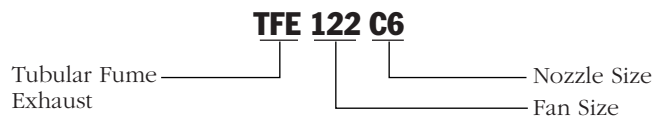
Where:

$$\text{SP (corrected)} = \text{SP desired} + \text{SP loss @ venturi cap}$$

$$= 2.0 + 0.23 = 2.23 \text{ in. W.G.}$$

- Use standard selection procedures to determine optimum fan selection based on desired parameter of cost, size, noise, etc.

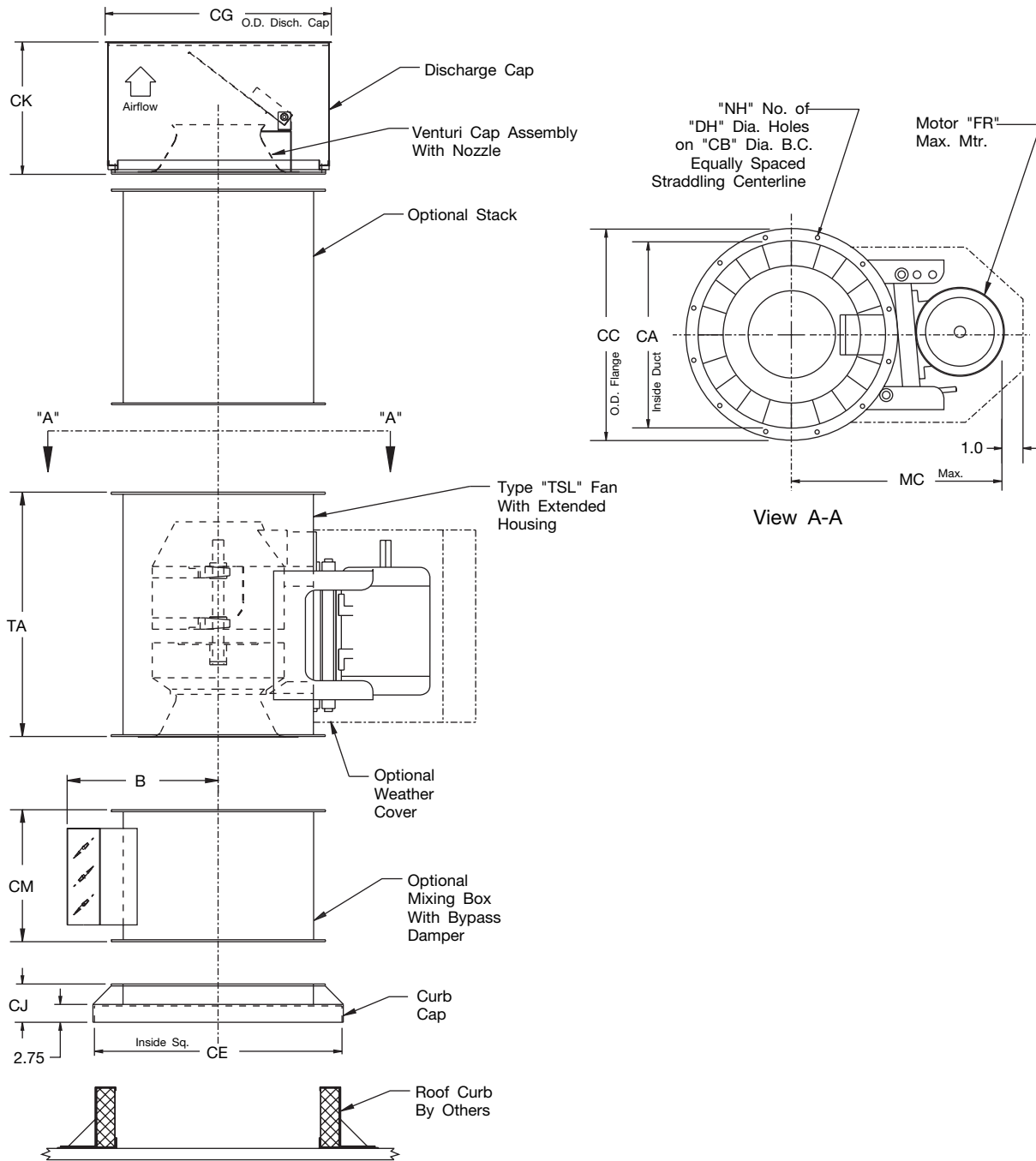
## Nomenclature



## TFE Venturi Cap Assembly – Static Pressure Loss (in. W.G.)

FAN		NOZZLE		OUTLET VELOCITY (FPM)								
SIZE	AREA	SIZE	AREA	2000	2500	3000	3500	4000	4500	5000		
<b>122</b>	1.51	C6	0.20	0.25	0.38	0.55	0.75	0.98	1.24	1.53		
		C7	0.24	0.24	0.38	0.55	0.74	0.97	1.23	1.52		
		C8	0.39	0.23	0.36	0.52	0.71	0.93	1.18	1.45		
		C10	0.54	0.22	0.34	0.49	0.67	0.87	1.10	1.36		
		C11	0.64	0.20	0.32	0.46	0.63	0.82	1.04	1.28		
		C12	0.81	0.18	0.28	0.40	0.54	0.71	0.90	1.11		
<b>150</b>	2.25	C13	0.98	0.14	0.23	0.32	0.44	0.58	0.73	0.90		
		C10	0.54	0.24	0.37	0.53	0.72	0.94	1.19	1.47		
		C11	0.64	0.23	0.36	0.52	0.70	0.92	1.16	1.43		
		C12	0.81	0.22	0.34	0.49	0.66	0.87	1.10	1.36		
		C13	0.98	0.20	0.32	0.45	0.62	0.81	1.02	1.26		
		C15	1.20	0.18	0.28	0.40	0.55	0.71	0.90	1.12		
<b>182</b>	3.34	C16	1.43	0.15	0.23	0.33	0.46	0.59	0.75	0.93		
		C10	0.54	0.24	0.38	0.55	0.74	0.97	1.23	1.52		
		C11	0.64	0.24	0.38	0.54	0.74	0.96	1.22	1.50		
		C12	0.81	0.23	0.37	0.53	0.72	0.94	1.19	1.47		
		C13	0.98	0.23	0.36	0.51	0.70	0.91	1.15	1.42		
		C15	1.20	0.22	0.34	0.49	0.67	0.87	1.10	1.36		
<b>200</b>	4.04	C16	1.43	0.20	0.32	0.46	0.62	0.81	1.03	1.27		
		C18	1.78	0.18	0.28	0.40	0.55	0.71	0.90	1.12		
		C20	2.15	0.15	0.23	0.33	0.45	0.58	0.74	0.91		
		C13	0.98	0.23	0.37	0.53	0.72	0.94	1.19	1.47		
		C15	1.20	0.23	0.36	0.51	0.70	0.91	1.15	1.42		
		C16	1.43	0.22	0.34	0.49	0.67	0.87	1.10	1.36		
<b>222</b>	4.97	C18	1.78	0.20	0.31	0.45	0.62	0.80	1.02	1.26		
		C20	2.15	0.18	0.28	0.40	0.55	0.71	0.90	1.12		
		C22	2.61	0.15	0.23	0.33	0.44	0.58	0.74	0.91		
		C16	1.43	0.23	0.36	0.51	0.70	0.91	1.16	1.43		
		C18	1.78	0.22	0.34	0.49	0.67	0.87	1.10	1.36		
		C20	2.15	0.20	0.32	0.46	0.62	0.81	1.03	1.27		
<b>245</b>	6.01	C22	2.61	0.18	0.28	0.41	0.55	0.72	0.91	1.13		
		C24	3.31	0.14	0.22	0.31	0.42	0.56	0.70	0.87		
		C20	2.15	0.22	0.34	0.49	0.67	0.87	1.10	1.36		
		C22	2.61	0.20	0.32	0.46	0.62	0.81	1.02	1.26		
		C24	3.31	0.17	0.27	0.39	0.53	0.69	0.88	1.09		
		C27	3.90	0.14	0.23	0.32	0.44	0.58	0.73	0.90		
<b>270</b>	7.28	C22	2.61	0.22	0.34	0.49	0.67	0.87	1.10	1.36		
		C24	3.31	0.20	0.31	0.45	0.61	0.79	1.00	1.24		
		C27	3.90	0.18	0.28	0.40	0.54	0.71	0.90	1.11		
		C30	4.79	0.14	0.22	0.32	0.43	0.57	0.72	0.88		
		<b>300</b>	9.00	C24	3.31	0.22	0.34	0.49	0.66	0.86	1.09	1.35
				C27	3.90	0.20	0.32	0.46	0.62	0.81	1.03	1.27
C30	4.79			0.18	0.28	0.40	0.55	0.71	0.90	1.12		
C33	5.80			0.15	0.23	0.33	0.45	0.58	0.74	0.91		

# TFE Dimensional Data



SIZE	B	CA	CB	CC	CE	CG	CJ	CK	CM	DH	FR	MC	NH	TA
122	18.38	16.56	18.50	19.75	23.75	29.00	5.50	19.25	16.50	0.56	184T	23.13	8	31.25
150	20.13	20.25	22.13	23.38	27.38	33.00	6.00	22.50	20.25	0.56	215T	25.75	8	35.75
182	22.38	24.69	26.75	28.00	34.88	37.00	6.63	27.00	24.75	0.69	256T	34.44	12	37.25
200	23.63	27.06	29.13	30.31	37.38	40.00	6.75	29.50	27.00	0.81	256T	36.25	12	40.50
222	25.13	30.06	32.13	33.38	40.38	43.00	6.75	32.50	30.00	0.81	256T	39.19	12	44.50
245	26.63	33.13	35.13	36.38	43.38	46.00	7.00	35.50	33.25	0.81	365T	43.63	12	49.75
270	28.25	36.50	38.50	39.75	46.75	50.00	7.25	38.75	36.50	0.81	365T	46.44	12	53.25
300	30.38	40.56	43.13	44.88	51.00	53.00	7.75	42.50	40.50	0.81	365T	49.38	16	58.50

# TFE Typical Specifications

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Type TFE Fume Hood Exhaust Fans, where indicated on drawings and schedules, shall be of the non-overloading design, and shall be of the size and capacity as indicated in the fan schedule. Fume hood exhaust fans shall be as manufactured by Twin City Fan and Blower, Minneapolis, Minnesota.

The ratings shown are based on tests and procedures performed in accordance with AMCA Standard 210-74 for air moving devices. Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise well beyond the efficiency peak to assure quiet and stable operation under all conditions. Horsepower characteristics shall be truly self-limiting and shall reach a peak in the normal selection area.

**WHEELS** — Wheel diameters shall be in accordance with the standard sizes adopted by AMCA Standard 2411-69 for centrifugal tubular type fans. Fan wheel sizes 182 and larger shall have die-formed airfoil blades designed for maximum efficiency and quiet operation. The wheel shall be specifically designed for inline fans to offer a higher and broader efficiency range. The backplate of the wheel shall be designed to offer lower resistance to the air leaving the wheel. Wheels shall be statically and dynamically balanced and the complete fan assembly shall be test balanced at or near operating speed at the factory prior to shipment.

**HOUSINGS** — Housings shall be cylindrical welded steel throughout and suitably braced to prevent vibration or pulsation. Fan inlets shall be deep spun, fully streamlined, heavy cones. Airfoil blades shall be continuously welded to the backplate and wheel cone. Housings shall be equipped with a bolted access door for inspection and cleaning of the wheel, and a shaft seal where the shaft passes through the inner cylinder.

**SHAFT & BEARINGS** — Bearings are to be ball or roller anti-friction type, and shall be equipped with extended lubrication lines with grease fittings outside of the fan housing. Shafts shall operate at least 30% below first critical speed to assure smooth operation.

**CURB CAP** — A heavy-duty, coated steel or galvanized curb cap shall be included to provide for a weathertight transition between the roof curb and the fan. The curb cap shall allow discharge height up to 10 feet from roof without the need for guy wire support.

**DISCHARGE CAP** — A venturi type discharge cap shall be provided to efficiently increase discharge velocities to between 2500 and 3000 FPM without significantly affecting BHP requirements. The venturi discharge shall be covered by a hinged cap to provide a tight seal when the fan is not operating and shall be guarded by an encircling wind band. An extended stack between the fan and discharge cap shall be included to provide a minimum discharge height of between 84" and 120" from roof surface.

**WEATHER COVER** — A raintight, easily removable weather cover shall be provided to completely enclose the motor and exposed parts of the V-belt drive.

**OPTIONAL ACCESSORIES** — Where required the fans shall be provided with:

- M AMCA A, B, or C Spark Resistant Construction
- M Disconnect Switches
- M Hinged Access Door
- M Wheel Backplate Fins
- M Mixing Box with Bypass Damper
- M Special Coatings (Epoxy, Heresite, Eisenheiss) on airstream parts or entire unit

**SUBMITTALS** — Submittals for approval of equipment shall include copies of outline drawings, AMCA Certified Ratings, and percentage pressure-volume performance curves showing point of operation.

See individual bulletins for typical specifications:

TSL . . . . .	Bulletin 1001
BCV . . . . .	Bulletin 600
JRW . . . . .	Bulletin 800
CIW . . . . .	Bulletin 850
RBA . . . . .	Bulletin 902

# Additional Fume Hood Exhaust Fans

today's most demanding industrial applications. Designed for severe duty, the Type JRW features rustproof cast nickel/aluminum/bronze or cast aluminum wheel construction, with heavy-gauge coated steel, aluminum or stainless steel housings. The result is a fan with maximum strength and rigidity to resist the wear-and-tear of heavy industrial use.

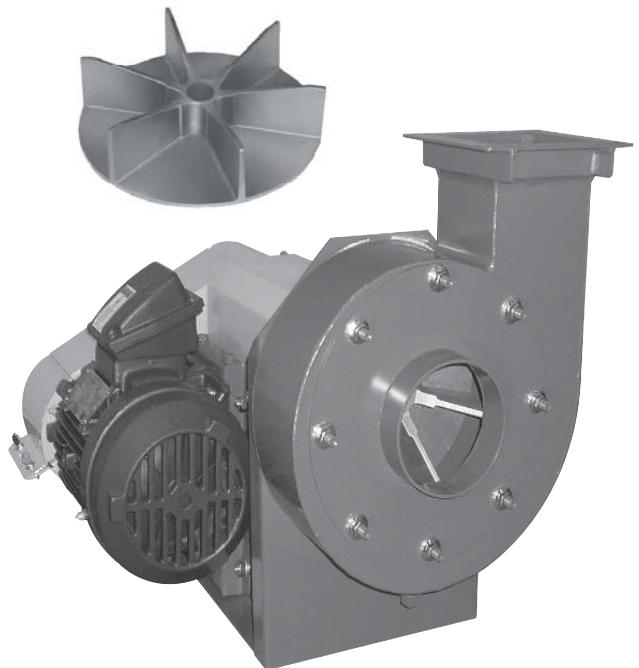
The radial blade design of the JRW prevents material build-up for smooth, trouble-free operation. Both direct drive and belt driven fan types are available.

All units are built with a rotatable discharge housing that can be field adjusted to any of the eight standard positions.

Special coatings are available for corrosion resistance to a variety of chemicals in fume hood applications

The Type JRW fan is available in Arrangements 1, 4, 9, 9F and 10.

For JRW fume hood exhaust performance, use JRW Bulletin 800 performance tables.



## CIW Cast Iron Blower

The CIW Cast Iron Blower is the perfect choice for low volume fume hood exhaust applications. These fans are available in belt driven and direct drive arrangements with heavy-duty cast iron housings and corrosion and spark resistant cast aluminum wheels. The cast wheel and housing are inherently corrosion resistant but special coatings are available for severe applications. The round inlet and discharge provide for easy duct and stack connections.

The Type CIW fan is available in Arrangements 1, 4, 9, 9F and 10.

For CIW fume hood exhaust performance, use CIW Bulletin 850 performance tables.



## BCV & BCJ Fans

Type BCV fans utilize a backward inclined non-overloading wheel in aluminum or steel construction. The Arrangement 10 "vent set" configuration provides an efficient, compact, weatherproof, rooftop exhaust fan assembly and is available in Class I or II. Twin City Fan & Blower's BCV fan is a rugged and versatile choice for a wide range of laboratory fume hood applications. For BCV fume hood exhaust performance, use BCV Bulletin 600 performance tables.

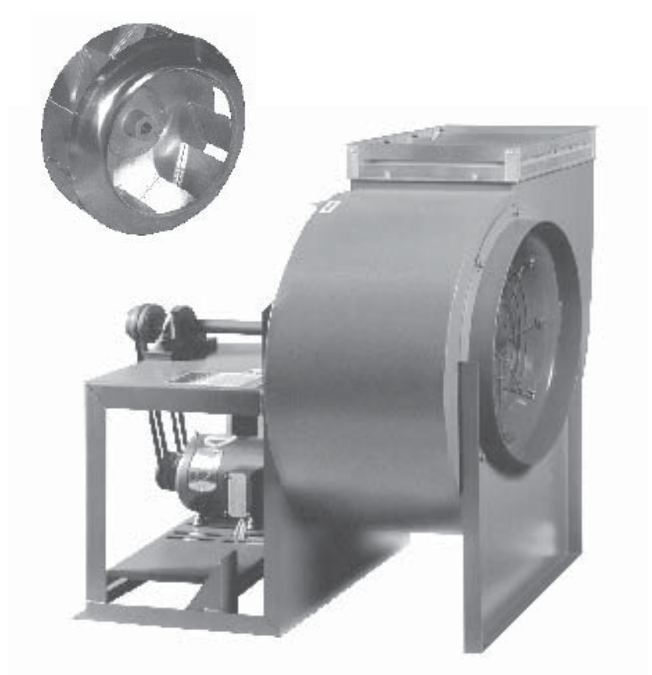
For lower volumes, the 105 BCJ can provide fume



# Additional Fume Hood Exhaust Fans

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hood exhaust in an efficient, compact, and low cost package. See Bulletin 551 for BCJ fan performance tables.



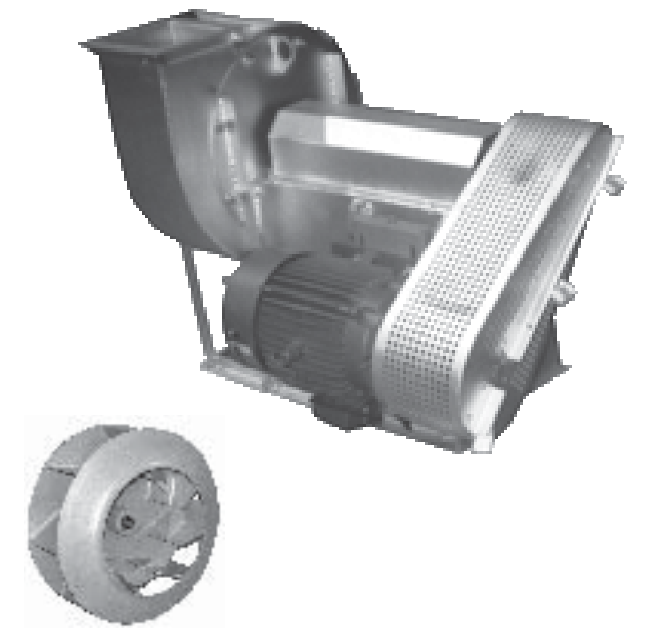
## RBA Industrial Fans

The radial air handling wheel, furnished in the RBA fan, is a more efficient type of radial bladed wheel and is used in applications handling relatively clean air, fumes, vapor exhaust, and air with a light material (dust) contaminant. The wheel is constructed with heavy-gauge blades welded to both backplate and front wheel cone.

Suited for installations involving exhaust, pollution control, air circulation, and a variety of industrial applications, the RBA fan is ideal for fume hood exhaust service requiring higher static pressure capabilities.

RBA fans are available in Arrangements 1, 8, 9 and 9F.

For RBA fume hood exhaust performance, use RBA Bulletin 902 performance tables.



# Typical Fume Hood Accessories

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## Discharge Caps

For rooftop mounting, a discharge cap can be provided for vertical discharge. The standard discharge cap incorporates butterfly dampers to seal out the weather when the fan is shut off while the wind band provides protection for the dampers. A unique venturi discharge cap (standard on TFE) is also available for use for higher discharge velocities.

## Drives

Cast iron, adjustable or fixed pitch drives are sized for at least 120% of motor horsepower with optional 150% available. Drives are set to the required RPM before shipping from the factory. Adjustable sheaves are provided on motors up to 10 HP, fixed sheaves for 15 HP and above.

## Curb Cap

Curb caps provide a weathertight transition between the fan and the roof curb. A heavy duty curb cap on TFE fans allows a stack extension of up to 10 feet (120 inches) total height without use of guy wires.

## Weather Cover

Weather covers are available to completely enclose the motor and V-belt drive from the elements. Provided with slots for ventilation, covers are easily removable for inspection and maintenance.

## Motors

A variety of single-phase and three-phase motors is available in ODP, TEFC, and EXP enclosures. High efficiency models are also available.

## Shaft Seal

Standard shaft seal is of ceramic fiber type sandwiched between two plates and the fan housing providing a seal for most material being handled. A variety of special seals is also available for tighter requirements or more positive protection, including mechanical type stuffing boxes.

## Access Door

Wheel area access door for inspection or cleaning of the wheel. Two types of access doors are available: a bolted type or a hinged, quick-opening type. Access doors are not available on Type CIW fans.

## Extended Stacks

When required, extended stacks can be included with any Twin City Fan & Blower fume hood exhaust fan depending upon the application. Extended stacks may require guy wires for support.

## Disconnect Switches

Disconnect switches are available for single and three phase units and are normally shipped loose.

## Inlet Mixing Box With Bypass Damper

On TFE fans, an optional mixing box with operable bypass damper can be provided for single fan bypass applications. The mixing box, which is mounted between the curb cap and the fan, allows for constant volume and velocity at the fan discharge by introducing outside air to the fan when the hood sash opening is lowered. This constant discharge velocity is achieved without exhausting conditioned room air.

The bypass damper can be supplied with an automatic operator. Controls are not included.

## Drain

For scroll type exhausters, a pipe coupling can be welded to the lowest point in the scroll to allow wash water or condensation to drain. Drains are not available on Type CIW fans.

## Spark Resistant Construction

Spark resistant construction type “B” or “C” is available for all Twin City Fan & Blower fume hood exhausters. AMCA “A” may be available for special applications. All spark resistant construction conforms to AMCA standards.

## Vibration Isolation

Isolator kits are available in either coil spring or rubber-in-shear, pads or rails. Spring type isolators are not recommended for JRW or CIW units due to their cantilevered housing design.

# Special Fume Hood Coatings & Materials

Many fume hood exhaust fans require special coatings for protection from the harsh environmental conditions that are often present in fume exhaust applications.

Twin City Fan & Blower can supply a broad range of protective coatings to help insure long and useful equipment life.

The following coatings have been successfully used on fume hood fans to provide corrosion resistance to a wide variety of gases and fumes:

- Sanitile, Synthetic Resin (Eisenheiss)
- Air-dried Heresite, Phenolic
- Epoxy
- Baked Heresite, Phenolic
- Phenolic Epoxy
- Teflon
- Kynar (Dykor)

In addition to the special coatings above, Twin City Fan & Blower can construct the entire fan, or airstream parts only, of special materials such as:

- Aluminum
- Stainless Steel (304 or 316)
- Monel
- Nickel Alum Bronze

Some of these materials provide the additional benefit of being non-sparking as well as corrosion resistant.

## Wheel Backplate Fins for Fume Hood Exhaust Fans

Fume hood exhaust applications require the fan and ductwork to be as leaktight as possible to prevent contamination of occupied spaces and areas of fresh air supply.

Fume hood fans normally utilize all welded housings, sealed tightly at the inlet and drive sides. The area most likely to leak is the shaft opening in the fan housing (Figure 1). Conventional shaft seals can minimize the leakage around the shaft, but they are not gas-tight.

Twin City Fan & Blower offers a low cost, yet effective solution to this problem by adding fins (Figure 2) to the backplate of the wheel. These fins create a negative pressure area behind the wheel which insures that any leakage around the shaft is into the fan and not out through the shaft opening in the housing (Figure 3).

Figure 1.

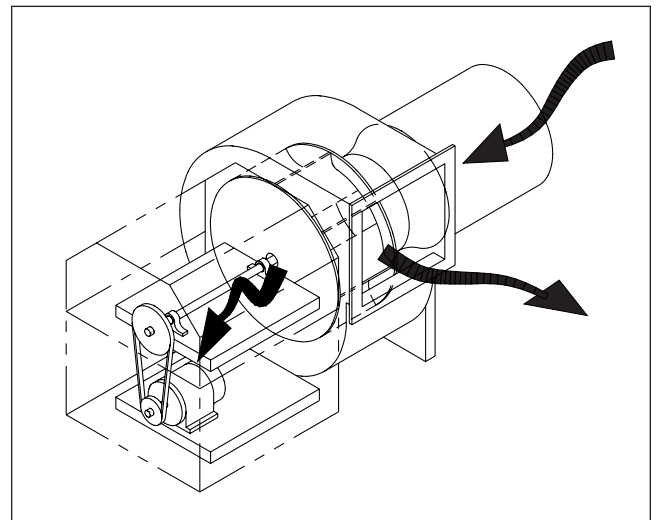


Figure 2.

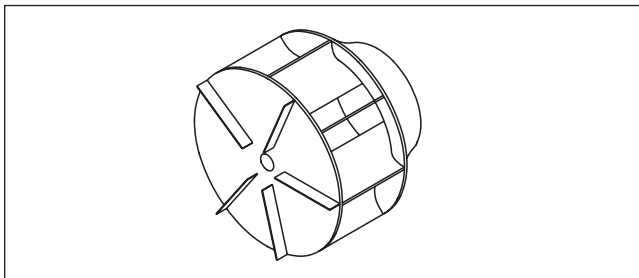
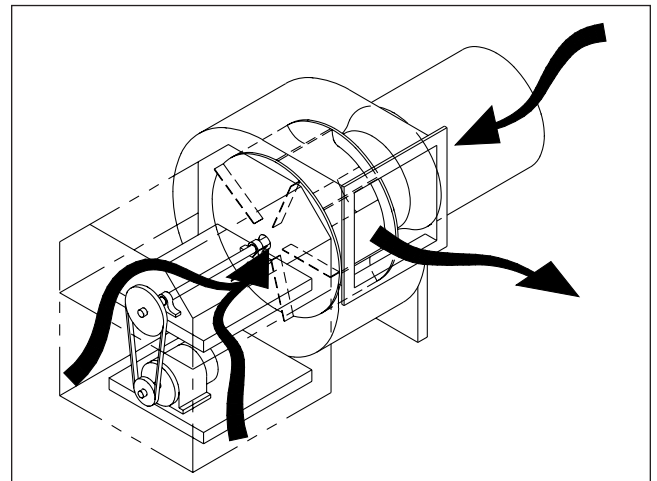


Figure 3.



# Unlimited Options...

## Commercial Fans

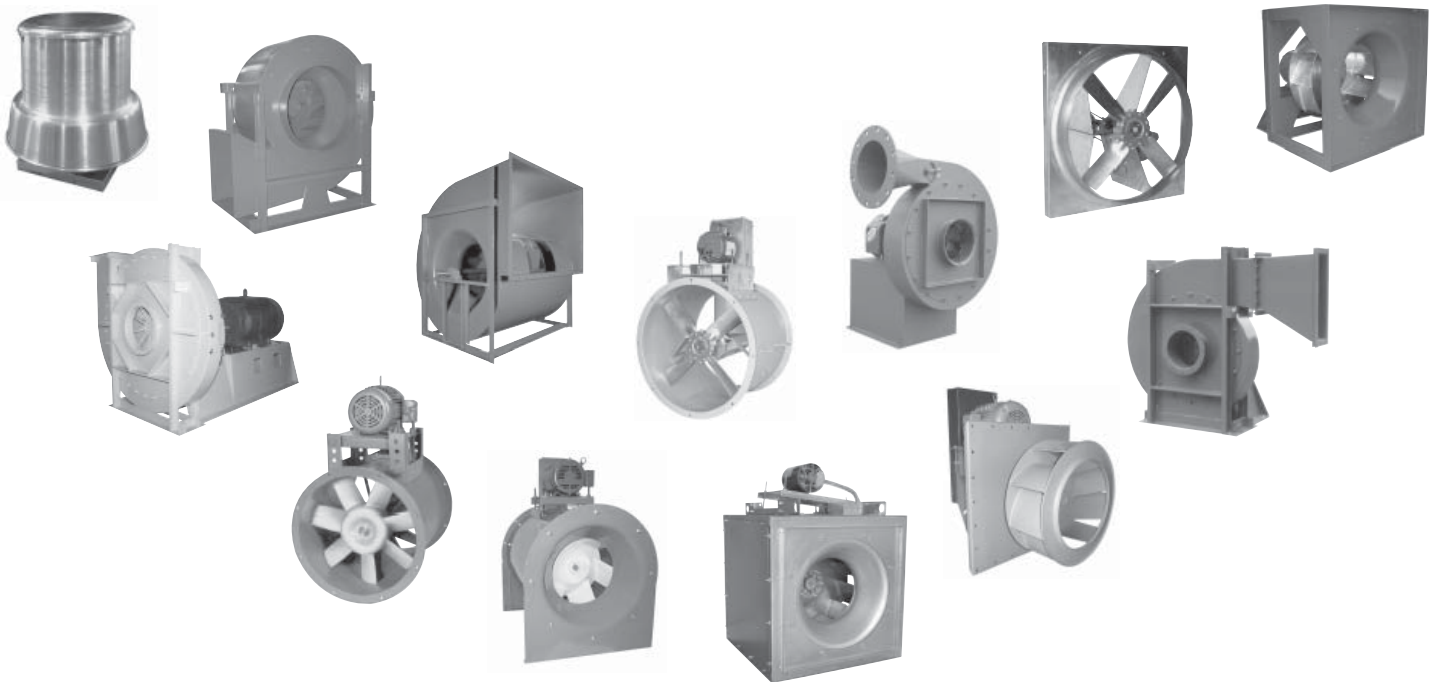
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Gravity Relief Ventilators • Ceiling & Cabinet Ventilators • Propeller Wall Fans  
Tubeaxial Fans • Vaneaxial Fans • Propeller Roof Ventilators  
Fume Hood/Smoke & Heat Exhaust Fans • Mancoolers • Fiberglass Fans

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