



INDUSTRIAL PROCESS AND  
COMMERCIAL VENTILATION SYSTEMS

# DIRECT DRIVE EXHAUST & SUPPLY PANEL FANS

MODEL TCPE



## Overview

### TCPE



TCPE  
Panel Fan

TCPE panel fans are direct drive panel fans designed for low static pressures. All units come standard with a spun galvanized panel, zinc plated motor mount/guard, custom engineered motor and an aluminum blade that is statically and dynamically balanced. They are manufactured under strict ISO 9001 quality standards and performance is certified by AMCA.

### Configurations

Exhaust and supply configurations available

### Certifications

AMCA Sound/Air and FEG, UL 705 Listed for Electrical

### Construction Features

- TCPE spun panels are constructed of 16-gauge G90 galvanized steel. Prepunched panel holes for easy mounting.
- The standard motor mount also serves as a motor side guard that complies with OSHA standards. The motor mount/guard is secured to the fan panel with captivated nut inserts that allow for easy servicing without the removal of the full panel after installation. All ODP and TE motors are custom engineered and come in a variety of standard voltages. All single phase 115V ODP motors can be used with a variable speed controller.
- Steel guards are zinc plated to inhibit corrosion.

Now Available with



see page 4



Twin City Fan & Blower certifies that the Model TCPE shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



Fan Efficiency Grade (FEG) certification applies to Model TCPE, Size 242A.



For complete product performance, drawings and available accessories, download our Fan Selector program at [tcf.com](http://tcf.com).

## Overview

### TCPE

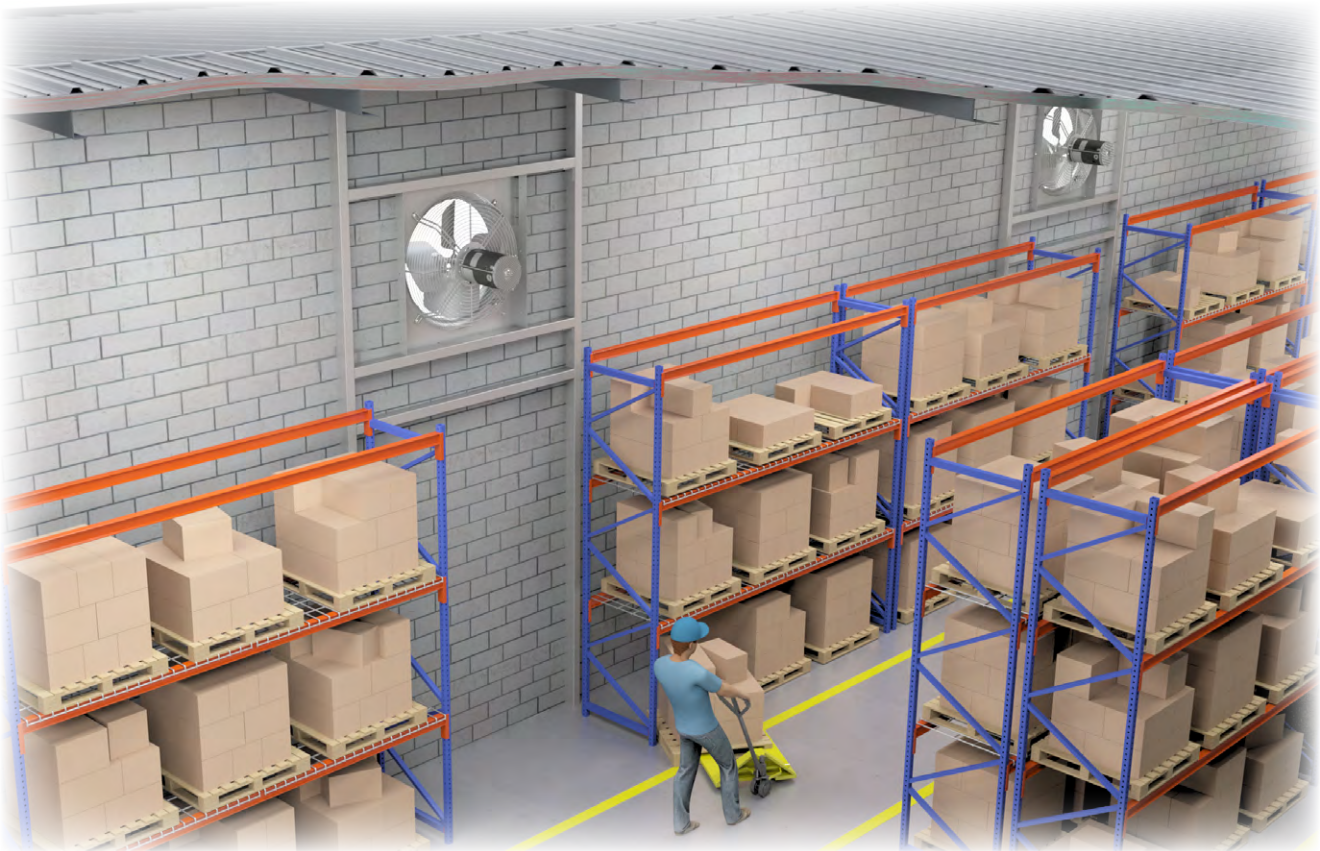
The Propeller Wall Fan is designed for low static pressures and can be mounted in a wall vertically or in a ceiling horizontally. These fans can be configured for both supply and exhaust applications. Typical applications include Warehouse Exhaust, Restroom Exhaust, Attic Exhaust and Garage Exhaust.

### Sizes

- 8" to 24" wheel diameters
- Motor and blade pitch combinations make up a total of 31 unique performing model sizes

### Performance

- Airflow to 7,600 CFM
- Static pressures to  $\frac{5}{8}$ " w.g.
- The addition of speed control adds flexibility to the performance capabilities of all sizes



General HVAC Exhaust

# ELECTRONICALLY COMMUTATED MOTORS



Model TCPE  
with GridSmart™ EC Motor

Twin City Fan & Blower offers its own line of custom engineered Electronically Commutated (EC) motors. Electronic commutation is the latest motor technology to be used in direct drive fans. Also known in the industry as Brush Free or Brushless DC, the EC motors utilize an electronic circuit board to control the functionality of the motor. The motor operates off of single phase AC power, which is converted to DC power within the motor's circuitry. Twin City Fan & Blower has motor options available for 115V, 208-230V or 277V single phase electrical power. The result is a highly efficient motor, even at part load, with an expanded speed control range and a variety of speed control options from which to choose. EC motors are available in ODP, TENV and TEFC enclosures.



1/6HP to 1HP  
GridSmart™ EC Motors

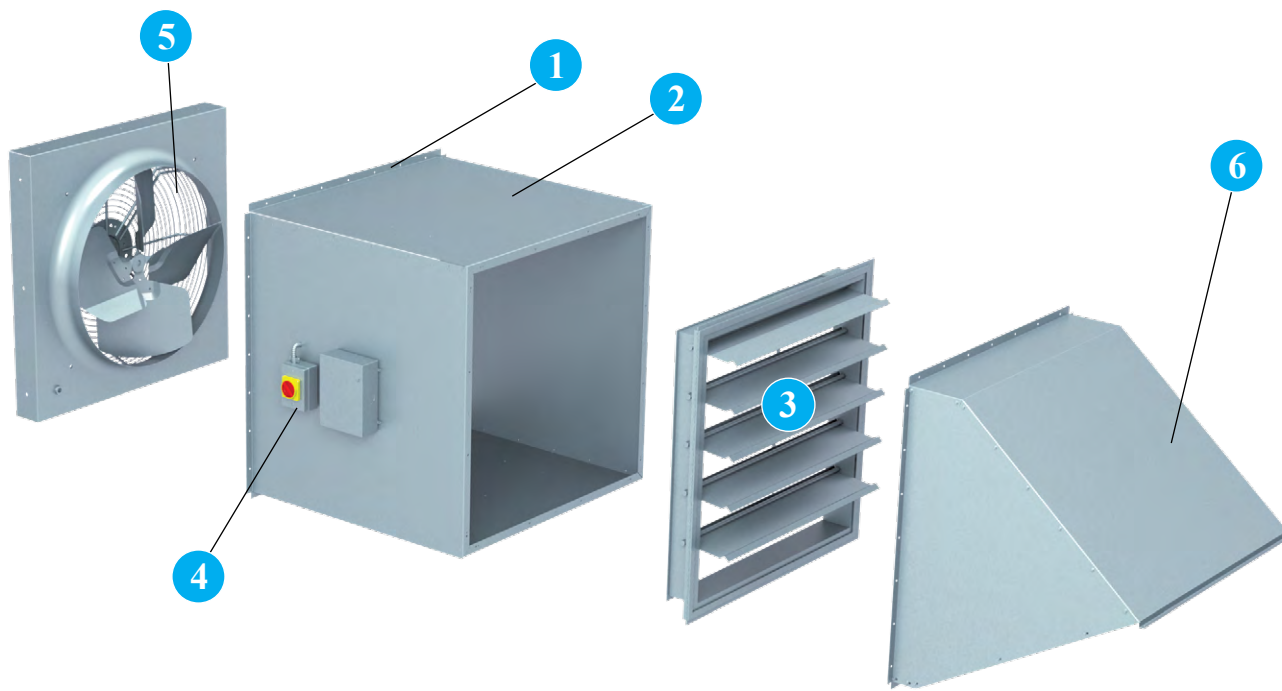
## Benefits

- Efficiencies up to 85%
- Constant efficiency as the motor speed is varied
- Up to 66% energy savings over traditional PSC motors
- Performance range comparable to a belt drive fan with reduced maintenance benefits of a direct drive fan
- 80% usable turndown range as compared with 40% maximum on PSC motors
- Soft start gives fans smooth, quiet start
- Lower operating temperatures result in longer life and reduces energy consumption
- Heavy-duty ball bearings are permanently lubricated
- Elimination of VFD results in lower initial cost

## EC Motor Options

### 1/6HP to 1HP

- 1/6HP: 115V, single phase
- 1/4HP – 1HP, 115V, 208-230V, 277V, single phase
- ODP or TENV Enclosure
- Motor mounted speed control dial as standard
- 0-10VDC control leads as standard
- Available with remote mounted speed control dial



- 1 Wall Collar** The wall collar is used to mount the TCPE fan and accessories cleanly into a wall. The collar will give the fan package a finished look when fully installed. It is constructed of 16-gauge G90 galvanized steel and can be ordered fully assembled or as a kit (field assembly required) to reduce shipping costs.
- 2 Wall Box** The wall box is used to completely enclose the fan and accessories. Constructed of 16-gauge galvanized steel with a removable screen. It is available fully assembled or as a kit.
- 3 Backdraft Damper** Backdraft dampers with automatic or motorized operation, feature a felt seal on the edge of the damper blades for quiet operation. Damper frames are constructed of galvanized steel and blades are constructed of 26-gauge aluminum. All dampers ship loose for field mounting in ductwork. Motorized dampers are recommended for low CFM applications to assure unrestricted airflow. Motorized dampers are available with 115, 208, 230, 460, 575 or 24 volt service; 575 volt service requires a step-down transformer. When a motorized damper option is selected a 12" (or greater) high roof curb is required.
- 4 Disconnect Switch** A NEMA 1 disconnect switch provides positive electrical shutoff during fan cleaning or maintenance. Available shipped loose for field mounting and wiring or factory mounted and wired with ODP or TEFC motors.
- 5 Damper Guard Screen** The damper guard screen is used to protect the backdraft damper when a weatherhood is not being used. It is constructed of 18-gauge G90 galvanized steel and comes with a galvanized screen. The screening complies with OSHA standards and will keep birds out of the fan and building.
- 6 Weatherhood with Guard Screen** The weatherhood is used to keep the elements from entering the building and to prevent wind from affecting the performance of the fan and backdraft damper. It easily fits over the backdraft damper and can be installed to the wall collar or wall box through the prepunched holes. The weatherhood is constructed of 18-gauge G90 galvanized steel and comes standard with a removable bird screen. It can be ordered fully assembled or as a kit (field assembly required) to reduce shipping costs.



NEMA 1 Disconnect Switch



NEMA 3R Disconnect Switch



NEMA 4 Disconnect Switch

Disconnect switches provide positive electrical shutoff during fan cleaning or maintenance.

### **NEMA 1 Disconnect Switch (Standard)**

A NEMA 1 disconnect switch is available shipped loose for field mounting and wiring or factory mounted and wired with ODP or TEFC motors.

### **NEMA 3R Disconnect Switch**

A NEMA 3R, rain proof, disconnect is available shipped loose for field mounting and wiring or factory mounted and wired externally.

### **NEMA 4 Disconnect Switch**

A NEMA 4, water and dust tight, disconnect is available shipped loose for field mounting and wiring or factory mounted and wired externally.



EC MOTOR SIZE	MTR HP	PSC MOTOR		NOMINAL RPM	MAX. POWER (WATTS)	MAX BHP	SONES @ 0" SP	CFM/STATIC PRESSURE (INCHES W.G.)								AVG. SHIP WT. (LBS.)	FAN EFF. GRADE
		SIZE	MTR HP					0"	0.100"	0.125"	0.250"	0.300"	0.375"	0.500"	0.625"		
082AE	1/6	080A	1/8	1350	40	---	3.3	387	202	171						15	N/A
		081A	1/8	1500	55	---	3.6	436	324	246	131					15	
		082A	1/8	1650	85	---	4.0	462	381	339	203	167				15	
		---	---	1750	---	0.04	4.5	490	418	388	233	205				15	
102AE	1/6	100A	1/8	1350	115	---	6.9	840	750	686	397	166				20	N/A
		101A	1/8	1500	135	---	6.6	882	791	751	483	442	195			20	
		102A	1/8	1650	140	---	7.0	924	839	805	533	499	433			20	
		---	---	1750	---	0.10	7.9	980	902	876	603	552	507			20	
122AE	1/6	120A	1/8	1350	120	---	7.0	1233	1060	999	295					26	N/A
		121A	1/8	1500	155	---	8.6	1366	1234	1193	696	549				26	
		122A	1/8	1650	225	---	9.5	1468	1350	1315	1056	879	600			26	
		---	---	1750	---	0.14	10.4	1558	1447	1416	1203	1062	702			26	
142AE	1/2	140A	1/8	800	145	---	6.6	1362	1008	788	309					28	N/A
		141A	1/6	1100	225	---	8.8	1818	1602	1525	876	744	555			29	
		142A	1/3	1700	480	---	15.1	2678	2552	2518	2309	2192	1991	1314	1053	31	
		---	---	1750	---	0.42	15.5	2756	2635	2602	2406	2300	2111	1444	1150	31	
162AE	3/4	160A	1/8	800	185	---	6.8	2029	1662	1504	682					30	N/A
		161A	1/4	1100	350	---	9.2	2680	2487	2427	1899	1438	1164	519		37	
		162A	1/2	1700	775	---	16.6	3947	3798	3759	3556	3470	3338	3080	2264	37	
		---	---	1750	---	0.70	17.1	4064	3918	3881	3685	3602	3475	3237	2925	37	
182AE	3/4	180A	1/6	800	280	---	8.6	2630	2293	2174	1309	1068				35	N/A
		181A	1/4	1100	415	---	10.6	3133	2901	2834	2410	2188	1589	1049		42	
		182A	3/4	1700	750	---	21	4672	4513	4474	4278	4203	4083	3793	3572	47	
		---	---	1750	---	0.67	22	4809	4655	4617	4426	4352	4240	3981	3731	47	
202AE	3/4	200A	1/4	800	375	---	8.6	3684	3287	3162	2013	1683				48	N/A
		201A	1/2	1100	875	---	14.7	5134	4894	4827	4380	4100	3683	2753	2184	50	
		202A	3/4	1700	725	---	19.7	4879	4751	4717	4542	4468	4351	4117	3819	51	
		---	---	1750	---	0.65	21	5022	4898	4866	4697	4625	4514	4300	4019	51	
---	---	240A	1/2	800	550	---	11.0	5754	5351	5226	3872	3315				57	---
		241A	1/2	1100	875	---	16.2	6367	6093	6020	5618	5436	5125			55	
Outlet Area = 3.31 ft <sup>2</sup>																	
242A	1	1100	1175	---	23	7615	7326	7248	6806	6592	6202	4836			62	FEG56	

EC Motor is an Electronically Commutated Motor. PSC Motor is a Permanent Split Capacitor Motor.

**NOTES:**

- Performance ratings do not include the effects of appurtenances (accessories).
  - Performance certified is for installation Type A: Free inlet, free outlet.
  - Speed (RPM) shown is nominal. Performance is based on actual speed of test.
  - The sound ratings shown are loudness values in fan sones at 5 ft. (1.5m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels
- \* TCPE custom engineered motors have been tested with a full load current and in some instances the amperage may be greater than the nameplate value. These motors still fall within NEMA recommended standards and will not overheat.

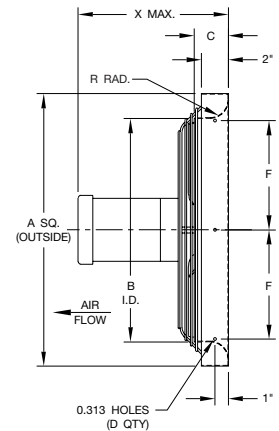
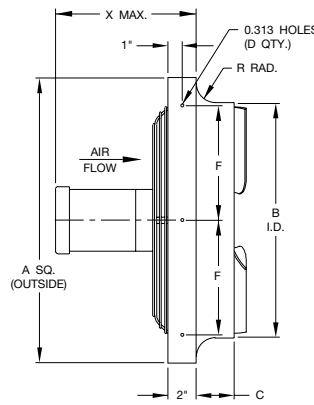
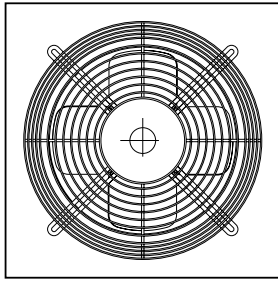
**Sound Power Levels**

SIZE	NOMINAL RPM	CFM	SOUND POWER RE <sup>-12</sup> WATTS								LwA
			OCTAVE BAND								
			1	2	3	4	5	6	7	8	
080A	1350	387	64	60	57	49	46	43	38	39	54
081A	1500	436	63	60	56	51	49	47	42	40	55
082A	1650	462	62	60	57	53	51	49	45	40	56
082AE	1750	490	63	62	59	55	53	51	47	42	59
100A	1350	840	65	75	62	60	58	56	50	43	64
101A	1500	882	67	72	63	60	59	57	51	44	64
102A	1650	924	66	73	65	61	60	58	52	45	65
102AE	1750	980	66	75	68	62	62	59	54	47	68
120A	1350	1233	67	67	67	63	61	58	53	46	66
121A	1500	1366	72	72	70	66	64	61	56	50	69
122A	1650	1468	66	74	73	67	65	63	58	51	71
122AE	1750	1558	66	75	74	69	67	65	60	53	73
140A	800	1362	67	76	61	57	55	50	44	43	63
141A	1100	1818	70	78	71	64	61	58	53	45	69
142A	1700	2678	70	85	81	73	70	68	64	57	78
142AE	1750	2756	69	85	82	74	71	69	64	58	79
160A	800	2029	67	75	62	60	59	54	46	41	64
161A	1100	2680	66	73	70	67	66	63	57	52	70
162A	1700	3947	71	80	83	76	74	72	67	60	80
162AE	1750	4064	72	80	83	77	75	73	68	61	81
180A	800	2630	66	79	69	62	61	57	51	44	68
181A	1100	3133	69	78	72	68	67	65	60	54	72
182A	1700	4672	80	89	82	77	76	75	72	67	82
182AE	1750	4809	79	90	83	78	77	76	73	67	84
200A	800	3684	68	75	68	67	65	60	54	48	69
201A	1100	5134	80	81	79	75	73	69	63	58	78
202A	1700	4879	75	84	85	81	77	74	69	65	83
202AE	1750	5022	75	84	86	82	78	74	70	66	84
240A	800	5754	83	74	74	70	68	64	58	51	73
241A	1100	6367	84	81	77	75	75	71	67	61	79
242A	1100	7615	86	84	83	83	84	74	68	61	86

**NOTES:**

- The sound power level ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301. The A-weighted sound ratings show have been calculated per AMCA Standard 301.
- Values shown are for Lwi sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of duct end correction.
- The AMCA Certified Ratings Seal applies to some ratings only.

## TCPE



EXHAUST

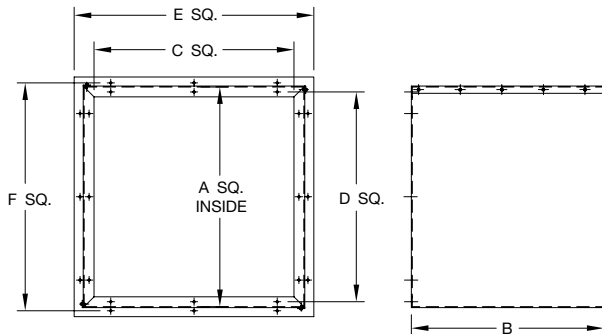
SUPPLY

SIZE	A (IN.)	B I.D. (IN.)	C (IN.)	D QTY.	F	R RAD.	X MAX.	Y MAX.	DAMPER SIZE	PROP DIA.	MIN. WALL OPENING SQ.	AVG. SHIP WT. (LB)
080A, 081A, 082A, 082AE	13.25	8.38	1.25	8	4.00	0.75	10.25	12.25	10 x 10	8.00	13.75	15
100A, 101A, 102A, 102AE	15.25	10.38	1.50		5.00	0.75	11.25	13.25	12 x 12	10.00	15.75	20
120A, 121A, 122A, 122AE	18.25	12.38	2.00		6.50	0.875	11.50	13.50	15 x 15	12.00	18.75	26
140A, 141A, 142A, 142AE	21.25	14.50	2.75	12	8.00	1.00	19.00	21.00	18 x 18	14.00	21.75	29
160A, 161A, 162A, 162AE	23.25	16.50	3.00		9.00	1.13	19.00	21.00	20 x 20	16.00	23.75	37
180A, 181A, 182A, 182AE	25.25	18.50	3.00		10.00	1.25	19.00	21.00	22 x 22	18.00	25.75	47
200A, 201A, 202A, 202AE	27.25	20.63	3.00		11.00	1.50	20.50	22.50	24 x 24	20.00	27.75	51
240A, 241A, 242A, 242AE	30.25	24.63	3.00		12.00	1.50	22.00	24.00	27 x 27	24.00	30.75	62

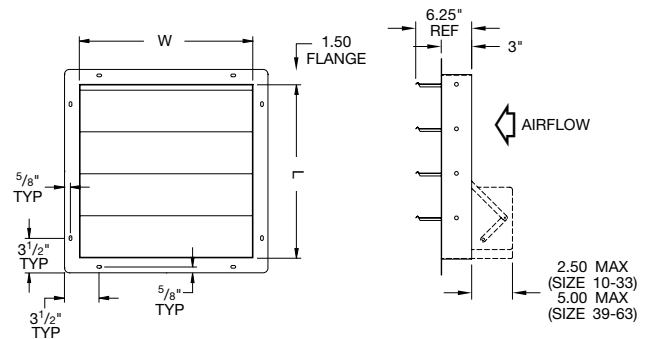
Dimensions are not to be used for construction.

D4800C  
D4805A

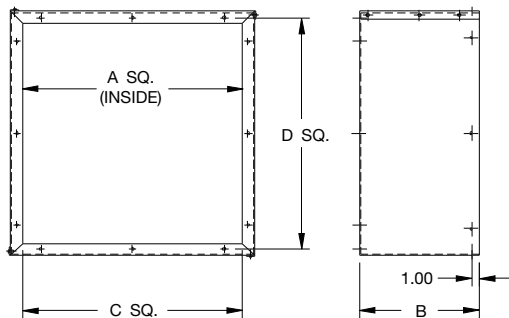
## Wall Box with Removable Screen



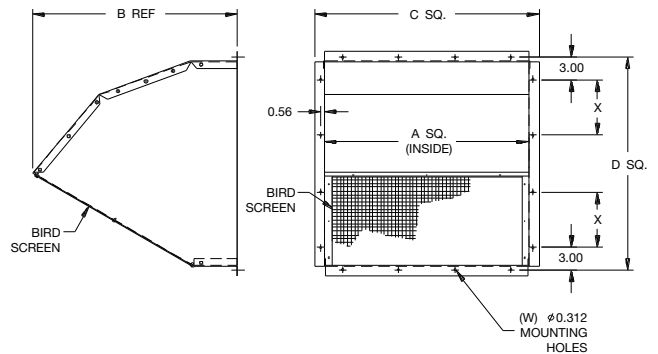
## Backdraft Damper



## Wall Collar



## Weatherhood with Bird Screen



SIZE	WALL BOX						WALL COLLAR				BACKDRAFT DAMPER	WEATHERHOOD					
	A	B	C	D	E	F	A	B	C	D	W x L	A	B	C	D	W	X
080A, 081A, 082A, 082AE	13.50	24.54	10.60	11.75	16.62	15.50	13.50	14.00	10.63	12.00	10.00 x 10.00	10.88	13.90	13.63	12.00	8	6.00
100A, 101A, 102A, 102AE	15.50	24.54	12.60	13.75	18.62	17.50	15.50	14.00	12.63	14.00	12.00 x 12.00	12.88	15.60	15.63	14.00	8	8.00
120A, 121A, 122A, 122AE	18.50	24.54	15.60	16.75	21.62	20.50	18.50	14.00	15.63	17.00	15.00 x 15.00	15.88	17.80	18.63	17.00	8	11.00
140A, 141A, 142A, 142AE	21.50	34.54	18.60	19.75	24.62	23.50	21.50	14.00	18.63	20.00	18.00 x 18.00	18.88	20.50	21.63	20.00	12	7.00
160A, 161A, 162A, 162AE	23.50	34.54	20.60	21.75	26.62	25.50	23.50	14.00	20.63	22.00	20.00 x 20.00	20.88	21.90	23.63	22.00	16	5.38
180A, 181A, 182A, 182AE	25.50	34.54	22.60	23.75	28.62	27.50	25.50	14.00	22.63	24.00	22.00 x 22.00	22.88	23.60	25.63	24.00	16	6.00
200A, 201A, 202A, 202AE	27.50	39.54	24.60	25.75	30.62	29.50	27.50	14.00	24.63	26.00	24.00 x 24.00	24.88	25.40	27.63	26.00	16	6.63
240A, 241A, 242A, 242AE	30.50	39.54	27.60	28.75	33.62	32.50	30.50	14.00	27.63	29.00	27.00 x 27.00	27.88	28.00	30.63	29.00	16	7.63

D4800-6 - Wall Box    E-DMPR-E - Damper    D4800-5 - Collar    D4800-3 - Hood





## Model TCPE

Wall exhaust fans shall be of the propeller direct drive Model TCPE, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Performance ratings shall conform to AMCA Standard 205 (fan efficiency grade), 211 (air performance) and 311 (sound performance). Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan efficiency grade (FEG).

Fans shall bear a permanently attached nameplate displaying model and serial number of the unit for future identification.

**CONSTRUCTION** — Panels shall be constructed of 16-gauge G90 galvanized steel for durability and appearance. Panels shall have a deep spun inlet venturi and prepunched holes for easy mounting.

**PROPELLERS** — Propellers shall be of fixed pitch design and constructed with fabricated aluminum blades fastened to a steel hub. The propeller assembly shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96, “Balance Quality and Vibration Levels for Fans” to Fan Application Category BV-3, Balance Quality Grade G6.3.

**MOTORS** — All motors shall be electronically commutated (EC), permanent split capacitor (PSC) single phase or three phase induction, permanently lubricated, heavy duty, ball bearing type, with thermal overload protection, closely matched to the fan load and provided at the voltage, phase, hertz, and enclosure as specified on the fan schedule. Motors for use with variable speed control shall be closely matched to the fan load and provide good speed controllability without any objectionable noise.

**MOTOR MOUNT/GUARD ASSEMBLY** — Motor mount/guard assembly shall be of zinc plated construction and secured to the fan panel with captivated nut inserts for easy servicing without the removal of the full panel. Propeller blades shall be protected on the air intake with a guard that is compliant to OSHA Standard 1910.212 (Machine Guarding, Exposure of Blades).

**FINISH AND COATING** — Fans shall have galvanized steel orifice panels.

**ACCESSORIES** — Fans shall be provided with wall collar, backdraft damper, damper guard screen, weatherhood with screen, variable speed controller and disconnect switch where required.

**FACTORY RUN TEST** — All fans prior to shipment shall be completely assembled and test run as a unit at operating speed or maximum RPM allowed for the particular construction type. Each propeller shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96 “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.

**GUARANTEE** — The manufacturer shall guarantee the workmanship and materials for its TCPE wall propeller fans for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.

# INDUSTRIAL PROCESS AND COMMERCIAL VENTILATION SYSTEMS

CENTRIFUGAL FANS | UTILITY SETS | PLENUM & PLUG FANS | INLINE CENTRIFUGAL FANS  
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