



INDUSTRIAL PROCESS AND  
COMMERCIAL VENTILATION SYSTEMS

## TUBEAXIAL FANS

TD | TB | TBSH (Smoke & Heat)



# TUBEAXIAL FANS



Model TD Direct Drive  
With "E" Die Cast Aluminum Impeller



Model TB Belt Driven  
With "Z" Fabricated Steel Impeller



All models are UL/cUL 705 listed, for electrical, File No. E158680.

Model TBSH is UL/cUL listed for Smoke Control Systems as standard, File No. E158680, 500°F for 4 hours and 1000°F for 15 minutes.



Twin City Fan & Blower certifies that the Models TD, TB and TBSH Tubeaxial Fans shown herein are licensed to bear the AMCA Seal. Certified performance data may be found in Twin City Fan & Blower's Fan Selector software.



Scan the QR code to search Twin City Fan & Blower's AMCA-certified products.

## Overview

TD | TB | TBSH

Twin City Fan & Blower TD and TB Tubeaxial Fans are specifically designed for cost effective, reliable air movement in commercial and light industrial ducted and non-ducted applications. Direct and belt drive models are available with cast aluminum or fabricated steel impellers to meet specific application requirements. The TBSH is designed to remove smoke from buildings in the event of fire. The TBSH is UL listed for listed for Smoke Control Systems for 500°F (260°C) for 4 hours or 1000°F (537°C) for 15 minutes.

### Construction Features

- Cast aluminum or fabricated steel impellers.
- Continuously-welded, heavy-gauge, corrosion resistant, TGIC polyester powder coated steel housing.
- Heavy-gauge steel motor and bearing supports provide maximum strength with minimal resistance to airflow.
- Flanged housings with prepunched mounting holes can easily be connected to ductwork.
- Dynamically balanced impellers for quiet, limited vibration operation.
- Designed for continuous-duty.
- Available with a wide variety of ODP, TEFC and explosion proof ball bearing motors.
- Extended lube lines are standard on Model TB fans.
- Externally mounted conduit box standard on Model TD fans.

### Sizes

14" to 60" impeller diameters

### Performance

Airflow to 82,600 CFM

Static pressure to 1.5" w.g.



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

## Impellers

TD | TB | TBSH

TD and TB tubeaxial fans are available with either fixed pitch fabricated steel (sizes 24 through 60) or adjustable pitch cast aluminum impellers (sizes 14 through 60). Each impeller type is designed for a wide variety of commercial and light industrial applications with static pressure capabilities from 0" to 1 1/2". Regardless of the application requirement, TD and TB impellers offer the right choice.

FAN SIZE	DIRECT DRIVE	BELT DRIVEN
14	B, E	B, E
16	B, E	B, E
18	B, E	B, E
21	B, E	B, E
24	B, E	B, E, Z
30	B, E	B, E, Z
36	B, E	B, E, Z
42	B, E	B, E, Z
48	B, E	B, E, Z
54	—	B, C, Z
60	—	C, Z

Impeller Availability

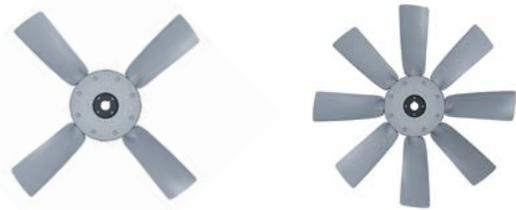
### "B" Backswept Impeller

The "B" series features an adjustable pitch die cast aluminum impeller available in 4, 5 and 6 blade designs. Blade angles are factory set and mounted in a die cast aluminum hub. "B" impellers are available in 14" through 54" diameters.



### "E" Die Cast Aluminum Impeller

The "E" series features an adjustable pitch die cast aluminum impeller available in 4 and 8 blade designs. Blade angles are factory set and mounted in a die cast aluminum hub. "E" impellers are available in 14" through 48" diameters.



### "C" Cast Aluminum Impellers

The "C" series is a cast aluminum impeller available in 4 and 6 blade designs, and is available in 54" and 60" diameters only. Blade angles are factory set and mounted in a cast aluminum hub.



### "Z" Fabricated Steel Impeller

The "Z" series features a fixed pitch, fabricated steel, 5-bladed impeller. Steel blades are continuously-welded to a heavy-gauge hub at the customer's selected blade angle. "Z" impellers are available in 24" through 60" diameters.



## 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.

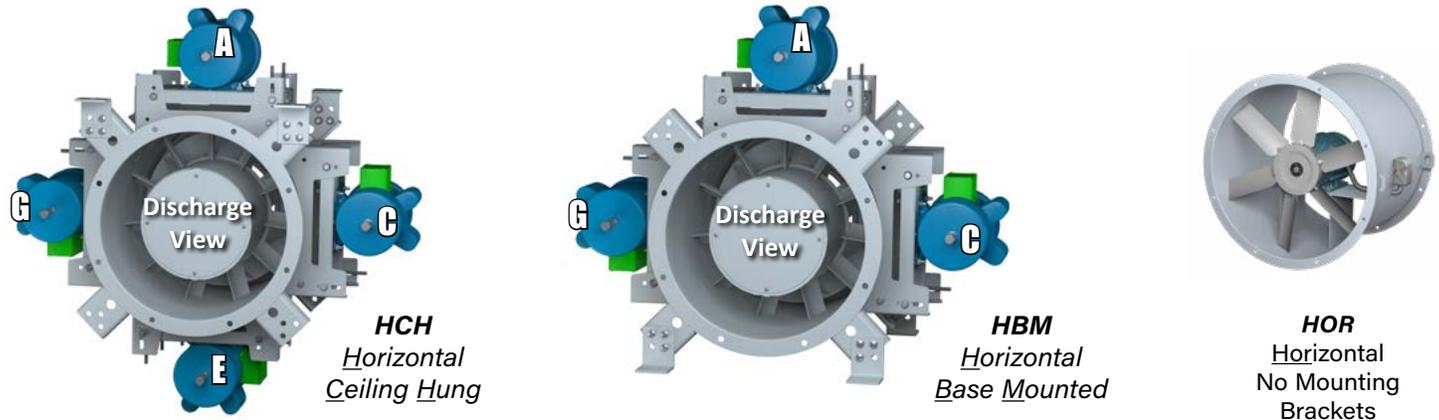
# MOUNTING ARRANGEMENTS

## Horizontal Construction

**Horizontal Base Mounted (HBM)** — Support legs are provided at each end of the fan for floor mounting.

**Horizontal Ceiling Hung (HCH)** — For duct mounted fans, four suspension clips are welded to the fan casing to allow ceiling suspension using rod hangers.

**Horizontal (HOR)** — For mounting configurations where support legs and suspension clips are not required.

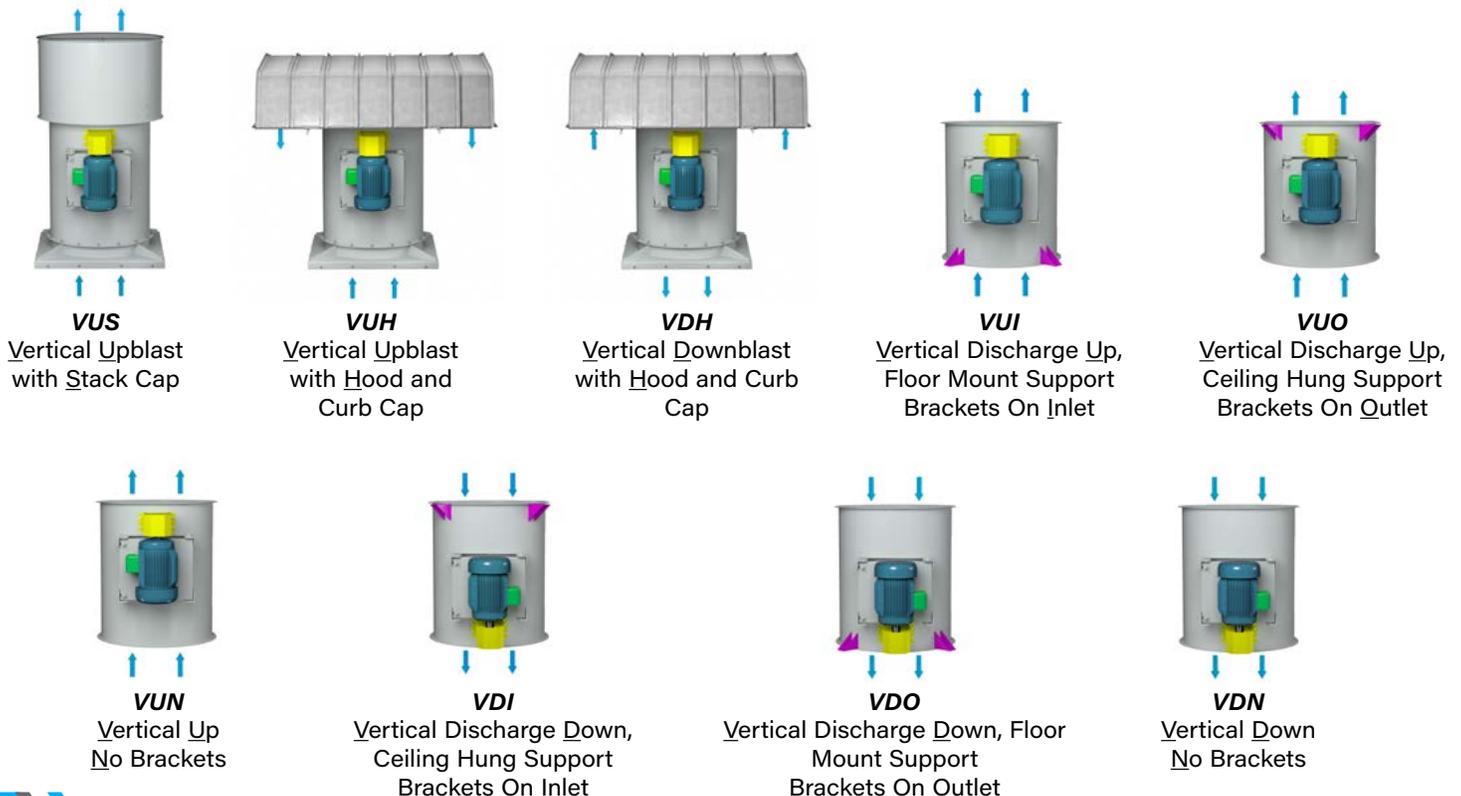


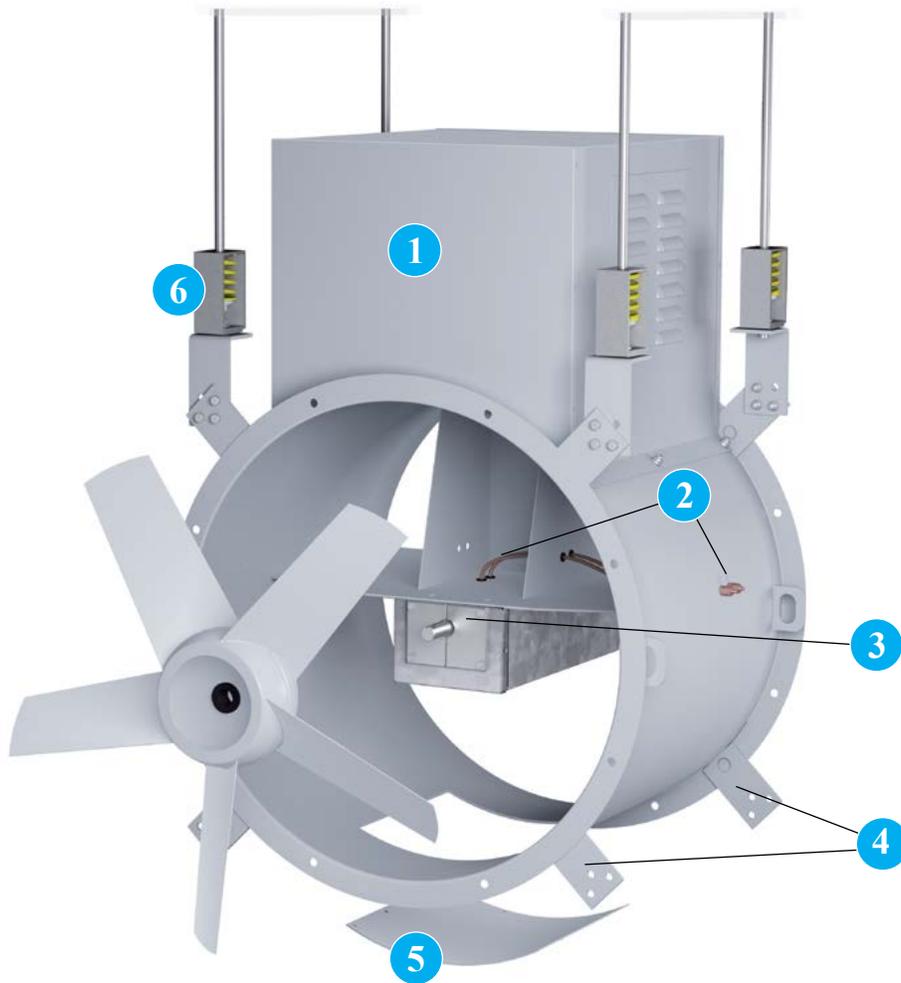
## Vertical Construction

**Floor or Ceiling Mounted (VUI/VUO/VDI/VDO)** — Four vertical brackets are welded to either end of the fan housing. Bracket location is determined by airflow direction and support details (see below).

**Roof Mounted (VRM)** — A curb cap provides weathertight seal for roof curb mounted fans. A stack cap and weather cover are also available for the upblast style roof ventilator.

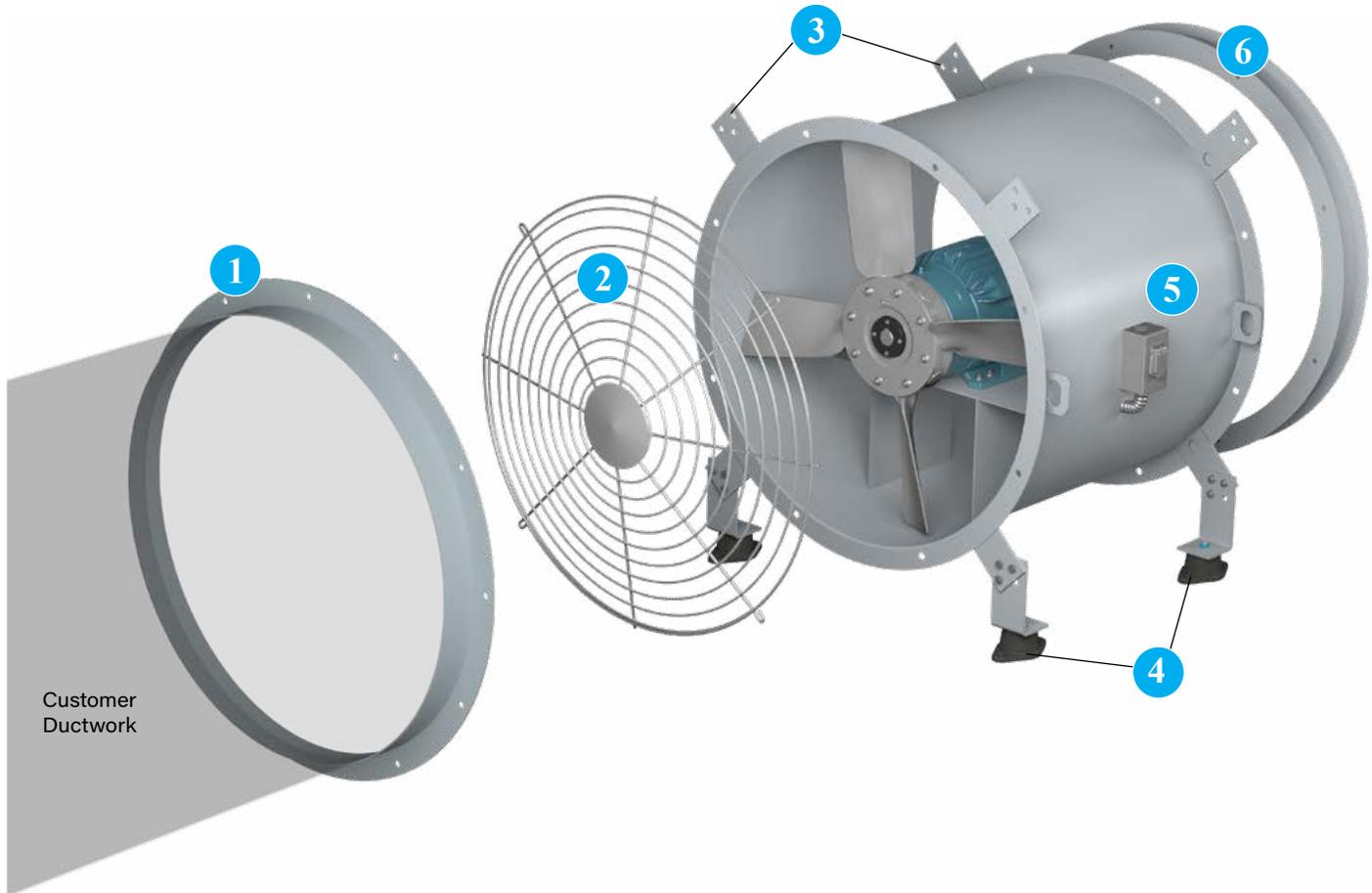
**Vertical (VUN/VDN)** — For mounting configurations where support brackets are not required.





- 1 Motor Cover** A weatherproof motor cover is available on belt driven models to protect the motor and drive components. Motor covers also serve as an OSHA guard to protect personnel from rotating parts and can easily be removed for inspection. (Model TB fans only.)
- 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 Shaft Seal** Shaft seal consists of a non-asbestos rubbing ring at the impeller end of the inner cylinder. A shaft seal is recommended when the fan is exposed to wet, corrosive or dirty contaminants. The shaft seal does not make the fan gas tight. (Model TB fans only.)
- 4 Mounting Brackets** Mounted to fan housing. Location varies with discharge orientation and mounting option. See page 4 for available options.
- 5 Access Door** A bolted access door allows for inspection and maintenance of internal fan components.
- 6 Hanging Spring Isolators** Spring type isolators are available to dampen vibration and noise transmission in ceiling suspended installations. Also available in rubber-in-shear construction.





**1 Companion Flange** Inlet and outlet companion flanges are available for ease of duct connection. Companion flanges are rolled angle rings punched to match the standard inlet or outlet flange.

**2 Outlet Screen** Safety screens are available for mounting in the fan inlet or outlet in non-ducted applications.

**3 Mounting Brackets** Mounted to fan housing. Location varies with discharge orientation and mounting option. See page 4 for available options.

**4 Floor Mount RIS** Rubber-in-shear type isolators are available to dampen vibration and noise transmission in floor mounted installations. Also available in spring type construction.

**5 Disconnect Switch** A NEMA 3R safety disconnect switch is available for positive electrical shutoff of the fan and the protection of service personnel. Disconnects are shipped loose for field mounting and wiring.

**6 Inlet Bell** An inlet bell is recommended to minimize entrance losses for installations where the inlet of the fan is non-ducted. Inlet bell is flanged and punched to mate up with the standard flanged inlet.

### Other Accessories Include:

- Spark Resistant Construction - Type B is available on belt driven fans with the "B", "E" or "C" cast aluminum impellers only. (Model TB fans only.)
- Special Coatings
- Belt Guard (Model TB fans only)

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

## NEMA-1 Disconnect Switch

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-1 Disconnect Switch

## 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-3R Disconnect Switch

## 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.



NEMA-4 Disconnect Switch

## NEMA-7/9 Disconnect Switch

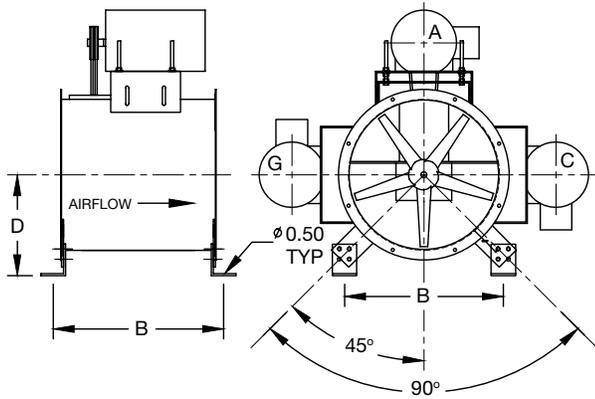
A NEMA-7/9 disconnect switch is recommended on fans with explosion proof motors. The NEMA-7/9 switch is designed for use with fans operating in hazardous environments. Available shipped loose for field mounting and wiring. (Not shown.)

## ENGINEERING DATA

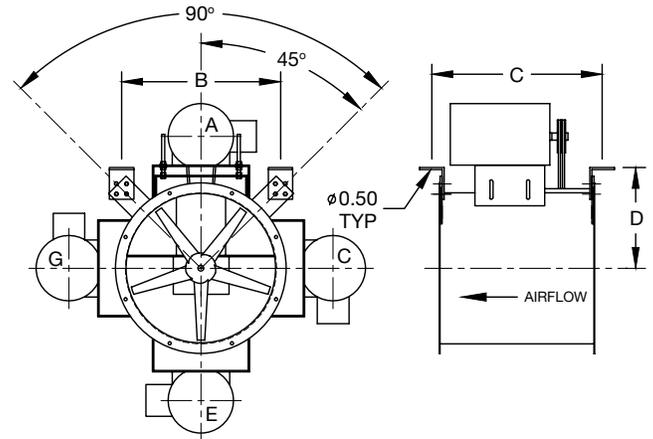
### Material Specifications

FAN SIZE	HOUSING	GAUGES				SHAFT SIZE (IN.)	APPROX. SHIP WT. (LB)					
		IMPELLERS		Z	TD		TB					
		B/E	C		HUB		BLADE	W/ ALUM PROP	W/ STEEL PROP	W/ ALUM PROP	W/ STEEL PROP	
14	14	DIE CAST ALUM.				3/4	33	N/A	40	N/A		
16	14					3/4	53	N/A	67	N/A		
18	14					3/4	60	N/A	75	N/A		
21	14					3/4	85	N/A	104	N/A		
24	14					12	14	1	97	118	118	139
30	12					12	14	1	149	170	183	204
36	12					12	12	1 <sup>3</sup> / <sub>16</sub>	234	257	288	311
42	12					10	10	1 <sup>7</sup> / <sub>16</sub>	305	325	375	395
48	12					10	10	1 <sup>7</sup> / <sub>16</sub>	547	565	664	682
54	12				CAST ALUM.	7	10	1 <sup>7</sup> / <sub>16</sub>	N/A	N/A	803	844
60	10		CAST ALUM.	7	10	1 <sup>11</sup> / <sub>16</sub>	N/A	N/A	970	1008		

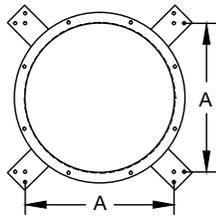
## Mounting Brackets



HORIZONTAL BASE MOUNT (HBM)  
VERTICAL FLOOR



HORIZONTAL CEILING HUNG (HCH)  
VERTICAL CEILING



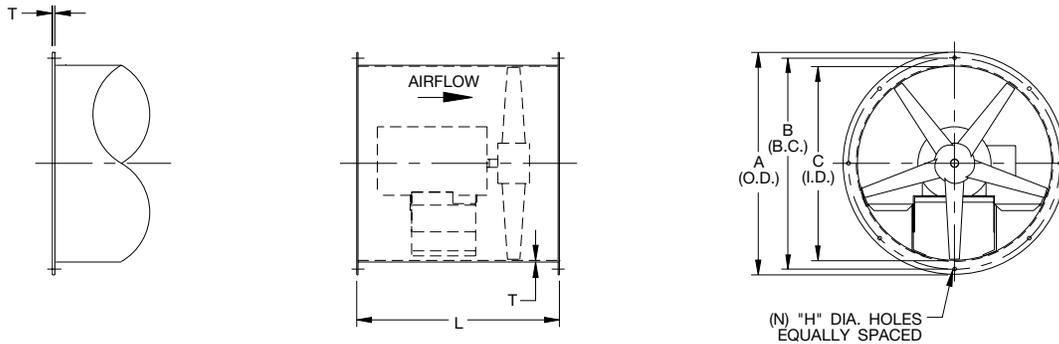
VERTICAL MOUNT (VUI, VUO, VDI, VDO)  
TOP VIEW

FAN SIZE	A	B	C	D
14	15.35	16.60	21.34	10.93
16	16.68	17.93	21.34	11.59
18	18.18	19.43	21.34	12.34
21	20.30	21.55	23.03	13.40
24	22.42	23.67	23.03	14.46
30	26.75	28.00	28.34	18.63
36	31.13	32.38	29.28	22.81
42	35.55	36.80	33.28	25.03
48	39.70	40.95	37.28	28.60
54	43.94	45.20	42.28	30.72
60	48.18	49.43	42.28	34.34

30013101F



**Direct Drive - TD**

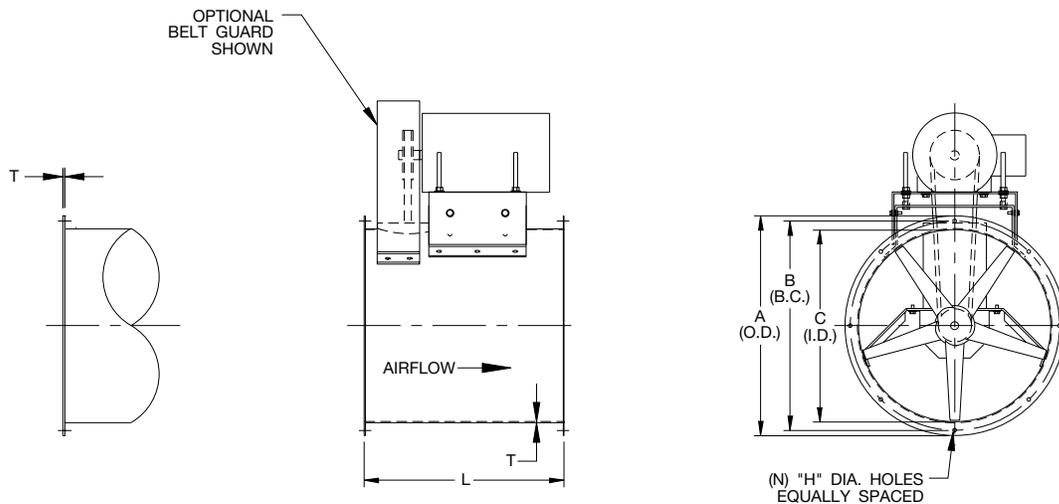


SIZE	A	B	C	H	L	N	T	MAX. HP	MAX. FRAME
14	16 7/8	15 7/8	14 1/4	9/16	19	8	14 GA.	3/4	56
16	19 5/8	17 7/8	16 1/8	9/16	19	8	14 GA.	1	143T
18	21 3/4	19 7/8	18 1/4	9/16	19	8	14 GA.	1	145T
21	24 3/4	22 7/8	21 1/4	9/16	21	8	14 GA.	1 1/2	145T
24	27 3/4	25 7/8	24 1/4	9/16	21	8	14 GA.	3	184T
30	33 7/8	32	30 3/8	9/16	26	8	12 GA.	5	184T
36	40 1/2	38 3/8	36 1/2	9/16	27	16	12 GA.	10	215T
42	46 3/4	44 5/8	42 3/4	11/16	31	16	12 GA.	10	256T
48	52 5/8	50 5/8	48 5/8	11/16	35	16	12 GA.	10	256T

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

D4830-2D

**Belt Driven - TB**



SIZE	A	B	C	H	L	N	T	SHAFT SIZE	MAX. HP	MAX. FRAME
14	16 7/8	15 7/8	14 1/4	9/16	19	8	14 GA.	3/4	3/4	56
16	19 5/8	17 7/8	16 1/8	9/16	19	8	14 GA.	3/4	1	143T
18	21 3/4	19 7/8	18 1/4	9/16	19	8	14 GA.	3/4	1 1/2	145T
21	24 3/4	22 7/8	21 1/4	9/16	20 11/16	8	14 GA.	3/4	2	145T
24	27 3/4	25 7/8	24 1/4	9/16	20 11/16	8	14 GA.	1	3	184T
30	33 7/8	32	30 3/8	9/16	26	8	12 GA.	1	5	213T
36	40 1/2	38 3/8	36 1/2	9/16	27	16	12 GA.	1 3/16	7 1/2	215T
42	46 3/4	44 5/8	42 3/4	11/16	31	16	12 GA.	1 7/16	10	215T
48	52 5/8	50 5/8	48 5/8	11/16	35	16	12 GA.	1 7/16	10	254T
54	58 5/8	57 1/4	54 5/8	11/16	40	16	12 GA.	1 7/16	15	256T
60	64 5/8	63 1/4	60 5/8	11/16	40	16	10 GA.	11 1/16	25	284T

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

D4830-1E



## Model TD

Tubeaxial fans shall be Model TD direct drive as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Performance ratings shall conform to AMCA Standard 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 energy index (FEI).

**CONSTRUCTION** — Housings shall be constructed of heavy-gauge, continuously-welded steel to prevent air leakage. Housings shall include punched inlet and outlet flanges for duct mounting. Motor supports shall be constructed of heavy-gauge steel and shall be suitably braced to prevent vibration or pulsation.

**IMPELLERS** — Impellers shall be constructed of cast aluminum blades and hubs. Impellers shall be secured to the motor shaft with a taper lock bushing.

**MOTORS** — All motors shall be split phase and capacitor start single phase or three phase induction, permanently lubricated, heavy-duty, ball bearing type, closely matched to the fan load and provided at the voltage, phase, hertz and enclosure as provided on the fan schedule.

**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. 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 shaft seals, inlet bells, inlet and outlet guards, mounting brackets, vibration isolators and disconnect switches shall be provided by Twin City Fan to maintain one source responsibility.

**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 impeller 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. Records shall be maintained and a written copy shall be available upon request.





## Model

### TB

Tubeaxial fans shall be Model TB belt driven as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Performance ratings shall conform to AMCA Standard 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 energy index (FEI).

**CONSTRUCTION** — Housings shall be constructed of heavy-gauge, continuously-welded steel to prevent air leakage. Housings shall include punched inlet and outlet flanges for duct mounting. Motor and bearing supports shall be constructed of heavy-gauge steel and shall be suitably braced to prevent vibration or pulsation.

**IMPELLERS** — Impellers shall be constructed of fabricated steel or cast aluminum blades and hubs. Impellers shall be secured to the fan shaft with a taper lock bushing.

**SHAFTS** — Shafts shall be AISI 1045 cold 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** — Bearings are to be pillow block, heavy-duty, anti-friction, self-aligning, grease lubricated, ball type. Each fan's bearings are sized with a minimum average life, per AFBMA, in excess of 200,000 hours when operating at the maximum RPM of the fan size.

**DRIVES** — Motor sheaves shall be cast iron and supplied as either variable pitch or fixed pitch. Drives and belts shall be rated for a minimum of 150% of the required motor HP.

**MOTORS** — All motors shall be single phase or three phase induction, permanently lubricated, heavy-duty, ball bearing type, closely matched to the fan load and provided at the voltage, phase, hertz and enclosure as provided on the fan schedule.

**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. 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, motor covers, shaft seals, inlet bells, inlet and outlet guards, mounting brackets, vibration isolators and disconnect switches shall be provided by Twin City Fan to maintain one source responsibility.

**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 impeller 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.



## Model TBSH

Smoke & Heat Tubeaxial fans shall be Model TBSH belt driven as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Performance ratings shall conform to AMCA Standard 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 energy index (FEI).

Model TBSH shall be UL listed for Smoke Control Systems (500°F for 4 hours and 1000°F for 15 minutes). Fans shall bear a permanently attached nameplate displaying model and serial number of the unit for future identification.

**CONSTRUCTION** — Housings shall be constructed of heavy-gauge, continuously-welded steel to prevent air leakage. Housings shall include punched inlet and outlet flanges for duct mounting. Motor and bearing supports shall be constructed of heavy-gauge steel and shall be suitably braced to prevent vibration or pulsation. Fans shall be capable operating continuously at 200 F to 500 F.

**IMPELLERS** — Impellers shall be constructed of fabricated steel blades and hubs. Impellers shall be secured to the fan shaft with a taper lock bushing and keeper plate.

**SHAFTS** — Shafts shall be AISI 1045 cold 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** — Bearings are to be pillow block, heavy-duty, anti-friction, self-aligning, grease lubricated, ball type. Each fan's bearings are sized with a minimum average life, per AFBMA, in excess of 200,000 hours when operating at the maximum RPM of the fan size.

**DRIVES** — Motor sheaves shall be cast iron and supplied as either variable pitch or fixed pitch. Drives and belts shall be rated for a minimum of 200% of the required motor HP and shall be two-groove minimum.

**MOTORS** — All motors shall be single phase or three phase induction, permanently lubricated, heavy-duty, ball bearing type, closely matched to the fan load and provided at the voltage, phase, hertz and enclosure as provided on the fan schedule.

**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. 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.

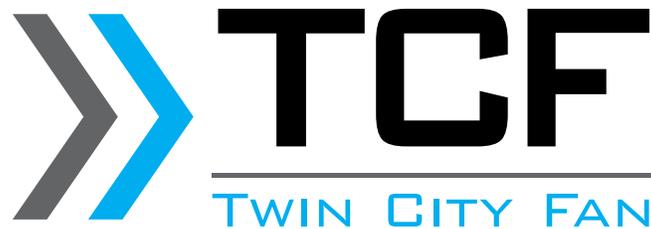
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# INDUSTRIAL PROCESS AND COMMERCIAL VENTILATION SYSTEMS

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  
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LABORATORY EXHAUST FANS | FILTERED SUPPLY FANS | MANCOOLERS | FIBERGLASS FANS | CUSTOM FANS



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