

BULLETIN 4850

August 2004

# Twin City Fan & Blower

## *UPBLAST & HOODED TUBEAXIAL ROOF VENTILATORS*

TYPE TUB / TUD / TUBSH  
TYPE THB / THD



# TUB / TUD / THB / THD / TUBSH

## Upblast & Hooded Tubeaxial Roof Ventilators

Twin City Fan & Blower Tubeaxial Roof Ventilators provide cost effective, general-purpose ventilation of commercial buildings. Belt and direct drive models are available with adjustable pitch, cast aluminum or fixed pitch, fabricated steel propellers to meet specific application requirements.

- Direct drive sizes 14" to 48"
- Belt drive sizes 14" to 60"
- Capacities from 730 CFM to 72,200 CFM
- Static pressure to 1½" w.g.

### Type TUB and TUD (Upblast)

Upblast models TUB and TUD include a heavy-duty, galvanized steel stack cap with butterfly dampers to discharge air upward and prevent recirculation into the building. A splash guard located over the damper pivot area protects against rain entry.

### Type THB and THD (Hooded)

Hooded models THB and THD feature a removable galvanized steel hood for cleaning purposes and are available in exhaust or supply configurations.

### Construction Features

- Painted steel windband on stack cap.
- Aluminum (sizes 14" to 36") and galvanized steel (sizes 42" to 60") butterfly dampers on stack cap.
- Hooded design construction of galvanized steel.
- Heavy-duty, painted steel curb base includes venturi inlet for efficient airflow and prepunched mounting holes for easy installation.
- Structural, galvanized steel frame provides strong support and mounting base for motor and drive.
- Motors are ball bearing type, available in ODP, TE and EXP with a variety of standard voltages.
- Motor cover standard on models TUB, TUBSH, and THB.
- Extended lube lines are standard on belt driven fans.



Twin City Fan & Blower certifies that the TUB/TUD/TUBSH Series 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.



Model TUB

### Type TUBSH (Smoke & Heat Removal)

Smoke and heat removal model TUBSH is designed to remove smoke from buildings in the event of a fire. The unit features fusible link damper springs which force dampers to open when the fusible links melt at 165°F.

The TUBSH is designed to meet the time/temperature standards (500°F for 4 hours, 1000°F for 15 minutes) and snow load test for dampers set forth by UL, IRI, and SBCCI.

### Accessories

- Bird screen (TUB/TUD only)
- Fusible link damper springs (TUB/TUD/TUBSH only)
- Magnetic damper latches (TUB/TUD/TUBSH only)
- Access door, bolted
- Prefabricated roof curbs
- Disconnect switches
- Externally mounted conduit box (TUD/THD only)
- Special coatings
- Shaft seal (TUB/THB only)
- Spark 'B' construction (TUB/THB only)
- Backdraft damper, gravity or motorized (THB/THD only)
- Curb extension with damper shelf (THB/THD only)
- Filtered supply fan construction (THB/THD only)



All models are cULus 705 listed, for electrical, File No. E158680.

Model TUBSH is UL listed for Smoke Control Systems, 500°F for 4 hours and 1000°F for 15 minutes.

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# Propellers

Twin City Fan & Blower Tubeaxial Roof Ventilators are available with either fixed pitch fabricated steel or adjustable pitch cast aluminum propellers. Each propeller type is designed for a wide variety of commercial market applications with static pressure capabilities from 0" to 1½". The TUBSH is available only with the fabricated steel propeller. Regardless of the application requirement, Twin City Fan & Blower propellers offer the right choice.

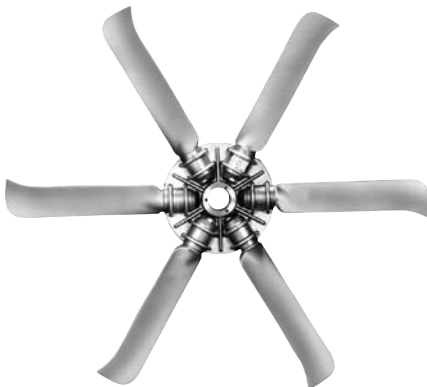
*Propeller Availability*

FAN SIZE	TUB/THB	TUD/THD	TUBSH
14	E	E	—
16	E	E	—
18	E	E	—
21	E	E	—
24	E/Z	E	Z
30	E/Z	E	Z
36	E/Z	E	Z
42	E/Z	E	Z
48	E/Z	E	Z
54	C/Z	—	Z
60	C/Z	—	Z



## “E” Die Cast Aluminum Propeller

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



## “C” Cast Aluminum Propellers

The “C” series is a cast aluminum propeller 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 Propeller

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

# Engineering Data

## Material Specifications

FAN SIZE	GAUGES			PROPELLERS				SHAFT SIZE (IN.)	APPROX. SHIP WT. (LB)						
	WIND BAND	CURB CAP	HOOD	E	C	Z			TUB	TUD	TUBSH	THB	THD		
						HUB	BLADE								
14	18	16	20	DIE CAST ALUM.				1	65	58	N/A	123	116		
16	18	16	20					1	97	83	N/A	177	137		
18	18	16	20					1	113	98	N/A	222	186		
21	18	16	20					1	157	138	N/A	288	260		
24	18	16	20					1	178	157	292	421	342		
30	16	16	20					1	289	255	419	558	508		
36	16	16	18					1	424	370	589	783	711		
42	16	16	18					10	10	1 <sup>3</sup> / <sub>16</sub>	539	469	724	884	799
48	14	14	18					10	10	1 <sup>3</sup> / <sub>16</sub>	871	754	1077	1252	1099
54	14	14	18					CAST ALUM.				1 <sup>3</sup> / <sub>16</sub>	1103	N/A	1345
60	14	14	18	1 <sup>7</sup> / <sub>16</sub>	1261	N/A	1609					1929	N/A		

## Model Nomenclature

**TUB - E - 24 - E - 4 - 16**

**Model** \_\_\_\_\_

- TUB = Upblast Tubeaxial Roof Ventilator, Belt Driven
- TUD = Upblast Tubeaxial Roof Ventilator, Direct Drive
- TUBSH = Smoke & Heat Removal Ventilator, Belt Driven
- THB = Hooded Tubeaxial Roof Ventilator, Belt Driven
- THD = Hooded Tubeaxial Roof Ventilator, Direct Drive

**E = Exhaust, S = Supply (THB/THD Only)** \_\_\_\_\_

**Fan Size** \_\_\_\_\_

**Propeller Type** \_\_\_\_\_

- Z = Fabricated Steel, Fixed Pitch (5-Bladed)
- E = Die Cast Aluminum, Adjustable Pitch (4- and 8-Bladed)
- C = Cast Aluminum, Adjustable Pitch (4- and 6-Bladed)

**No. of Blades** \_\_\_\_\_

**Propeller Blade Angle** \_\_\_\_\_

# Performance Data – Belt Driven

## TUB – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)												
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500		
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM		
14	4 BLADES	TUB-14E432	1/4	1681	0.25	79	1713	1501											
		TUB-14E428	1/4	1770	0.25	79	1712	1541	1289										
		TUB-14E420	1/4	1982	0.25	81	1689	1546	1385	1175									
		TUB-14E432	1/3	1850	0.33	81	1885	1701											
		TUB-14E428	1/3	1945	0.33	82	1881	1729	1537										
		TUB-14E420	1/3	2182	0.33	84	1859	1731	1590	1425									
	4 BLADES	TUB-14E432	1/2	2118	0.50	85	2158	2005	1789										
		TUB-14E428	1/2	2228	0.50	86	2154	2025	1874	1672									
		TUB-14E420	1/2	2498	0.50	88	2128	2018	1898	1770	1621	1427							
		TUB-14E432	3/4	2425	0.75	89	2471	2341	2180	1940									
		TUB-14E428	3/4	2550	0.75	89	2466	2355	2231	2088	1897								
		TUB-14E420	3/4	2860	0.75	91	2437	2341	2239	2132	2018	1890	1740						
8 BLADES	TUB-14E832	1/4	1543	0.25	79	1654													
	TUB-14E832	1/3	1698	0.33	82	1820	1534												
	TUB-14E832	1/2	1944	0.50	85	2084	1880												
	TUB-14E832	3/4	2225	0.75	89	2385	2220												
16	4 BLADES	TUB-16E432	1/4	1405	0.25	77	2210	1912											
		TUB-16E428	1/4	1486	0.25	79	2201	1947	1564										
		TUB-16E420	1/4	1685	0.25	81	2138	1914	1663										
		TUB-16E432	1/3	1543	0.33	79	2427	2165											
		TUB-16E428	1/3	1636	0.33	81	2423	2197	1911										
		TUB-16E420	1/3	1854	0.33	84	2353	2150	1937	1645									
		TUB-16E432	1/2	1771	0.50	84	2786	2566	2280										
		TUB-16E428	1/2	1873	0.50	86	2774	2581	2358	2055									
		TUB-16E420	1/2	2121	0.50	88	2692	2516	2333	2134	1859								
	4 BLADES	TUB-16E432	3/4	2027	0.75	88	3188	3001	2779	2461									
		TUB-16E428	3/4	2144	0.75	89	3175	3009	2825	2615	2327								
		TUB-16E420	3/4	2430	0.75	92	3084	2931	2772	2612	2432	2198	1886						
	8 BLADES	TUB-16E432	1	2232	1.00	91	3511	3343	3151	2922									
		TUB-16E428	1	2359	1.00	92	3494	3344	3181	3003	2795	2500							
		TUB-16E420	1	2675	1.00	95	3395	3256	3114	2968	2820	2648	2433	2162					
		TUB-16E832	1/4	1263	0.25	77	2157	1830											
		TUB-16E832	1/3	1390	0.33	79	2374	2096											
		TUB-16E832	1/2	1593	0.50	82	2721	2492											
18	4 BLADES	TUB-18E432	1/4	1196	0.25	75	2748	2346											
		TUB-18E428	1/4	1272	0.25	75	2734	2374											
		TUB-18E420	1/4	1470	0.25	81	2652	2327	1938										
		TUB-18E432	1/3	1316	0.33	77	3024	2666											
		TUB-18E428	1/3	1397	0.33	79	3002	2679	2284										
		TUB-18E420	1/3	1617	0.33	84	2917	2621	2315										
	4 BLADES	TUB-18E432	1/2	1508	0.50	82	3465	3160	2792										
		TUB-18E428	1/2	1602	0.50	83	3443	3167	2856										
		TUB-18E420	1/2	1852	0.50	89	3341	3083	2828	2514									
		TUB-18E432	3/4	1725	0.75	86	3964	3703	3409										
		TUB-18E428	3/4	1833	0.75	88	3939	3701	3441	3147									
		TUB-18E420	3/4	2120	0.75	93	3824	3600	3374	3150	2854								
8 BLADES	TUB-18E432	1	1900	1.00	90	4366	4131	3871	3581										
	TUB-18E428	1	2018	1.00	91	4337	4122	3891	3643	3354									
	TUB-18E420	1	2333	1.00	96	4209	4005	3799	3598	3382	3088								
	TUB-18E432	1½	2175	1.50	94	4998	4795	4576	4342	4079									
	TUB-18E428	1½	2311	1.50	95	4966	4781	4584	4377	4157	3907								
	TUB-18E420	1½	2673	1.50	99	4822	4644	4465	4285	4111	3927	3697							
8 BLADES	TUB-18E832	1/4	1056	0.25	75	2693	2322												
	TUB-18E832	1/3	1162	0.33	77	2963	2636												
	TUB-18E832	1/2	1331	0.50	80	3394	3119												
	TUB-18E832	3/4	1523	0.75	84	3884	3649	3373											
	TUB-18E832	1	1676	1.00	87	4274	4064	3822	3542										
	TUB-18E832	1½	1920	1.50	91	4896	4715	4516	4293	4038									

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## TUB – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)																			
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500									
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM									
21	4 BLADES	TUB-21E432	1/4	995	0.25	75	3462	2854																		
		TUB-21E428	1/4	1064	0.25	75	3469	2903																		
		TUB-21E420	1/4	1243	0.25	80	3362	2879	2257																	
		TUB-21E432	1/3	1096	0.33	77	3813	3288																		
		TUB-21E428	1/3	1170	0.33	78	3814	3308																		
		TUB-21E420	1/3	1368	0.33	82	3700	3260	2770																	
		TUB-21E432	1/2	1255	0.50	81	4366	3928	3313																	
		TUB-21E428	1/2	1340	0.50	81	4368	3934	3439																	
		TUB-21E420	1/2	1567	0.50	86	4239	3855	3469	2959																
		TUB-21E432	3/4	1436	0.75	84	4996	4625	4164																	
		TUB-21E428	3/4	1534	0.75	86	5001	4627	4219	3754																
		TUB-21E420	3/4	1793	0.75	90	4850	4515	4180	3822	3347															
	TUB-21E432	1	1581	1.00	87	5500	5169	4778	4278																	
	TUB-21E428	1	1688	1.00	89	5503	5165	4803	4406	3945																
	TUB-21E420	1	1974	1.00	93	5340	5036	4729	4426	4066	3607															
	TUB-21E432	1½	1811	1.50	91	6300	6016	5697	5326	4868																
	TUB-21E428	1½	1935	1.50	93	6308	6016	5708	5383	5029	4641															
	TUB-21E420	1½	2261	1.50	97	6116	5851	5584	5318	5051	4743	4371	3917													
	TUB-21E432	2	1992	2.00	94	6930	6674	6393	6080	5717	5278															
	TUB-21E428	2	2126	2.00	95	6931	6666	6390	6101	5797	5467	5113														
	TUB-21E420	2	2488	2.00	99	6730	6489	6247	6003	5765	5518	5236	4905	4522												
	8 BLADES	TUB-21E832	1/4	866	0.25	73	3377	2860																		
		TUB-21E832	1/3	952	0.33	76	3713	3251																		
		TUB-21E832	1/2	1091	0.50	79	4255	3862																		
TUB-21E832		3/4	1249	0.75	83	4871	4536	4157																		
TUB-21E832		1	1375	1.00	86	5362	5062	4726	4336																	
TUB-21E832	1½	1575	1.50	90	6142	5883	5601	5299	4938																	
TUB-21E832	2	1732	2.00	91	6755	6521	6270	6000	5719																	
24	4 BLADES	TUB-24E432	1/3	939	0.33	76	4700	3950																		
		TUB-24E424	1/3	1085	0.33	80	4590	4024	3191																	
		TUB-24E416	1/3	1315	0.33	86	4316	3825	3193	2408																
		TUB-24E432	1/2	1075	0.50	81	5380	4770	3905																	
		TUB-24E424	1/2	1247	0.50	84	5275	4804	4173	3316																
		TUB-24E416	1/2	1510	0.50	89	4956	4539	4046	3430	2730															
		TUB-24E432	3/4	1230	0.75	83	6156	5644	4957																	
		TUB-24E424	3/4	1426	0.75	88	6032	5632	5140	4523	3718															
		TUB-24E416	3/4	1728	0.75	93	5671	5314	4911	4442	3884	3284														
		TUB-24E432	1	1354	1.00	87	6777	6321	5749	5056																
		TUB-24E424	1	1570	1.00	92	6641	6283	5866	5349	4747	3953														
		TUB-24E416	1	1902	1.00	95	6242	5920	5567	5170	4712	4195	3649													
	TUB-24E432	1½	1551	1.50	90	7763	7373	6923	6361	5750																
	TUB-24E424	1½	1797	1.50	94	7601	7293	6951	6555	6088	5570	4946														
	TUB-24E416	1½	2178	1.50	99	7148	6870	6572	6250	5896	5501	5056	4599	4110												
	TUB-24E432	2	1705	1.99	93	8534	8183	7791	7329	6783	6215															
	TUB-24E424	2	1978	2.00	95	8367	8090	7788	7454	7067	6633	6160	5612													
	TUB-24E416	2	2395	2.00	101	7860	7609	7343	7060	6757	6428	6067	5665	5252	4362											
	TUB-24E432	3	1953	3.00	96	9775	9472	9145	8783	8366	7891	7412														
	TUB-24E424	3	2263	3.00	100	9572	9332	9077	8803	8505	8169	7799	7408	6983	5946											
	TUB-24E416	3	2744	3.00	104	9006	8788	8560	8323	8073	7810	7530	7233	6909	6199	5456										
	8 BLADES	TUB-24E832	1/3	798	0.33	74	4513	3893																		
		TUB-24E832	1/2	913	0.49	79	5164	4628	3937																	
		TUB-24E832	3/4	1046	0.75	82	5916	5456	4958																	
TUB-24E832		1	1152	1.00	85	6516	6102	5657	5121																	
TUB-24E832		1½	1319	1.49	88	7460	7102	6720	6327	5818																
TUB-24E832	2	1451	2.00	91	8207	7883	7542	7187	6817	6294																
TUB-24E832	3	1661	3.00	94	9395	9114	8822	8517	8206	7887	7500															

**NOTES:**

- Performance certified is for installation Type A: Free inlet, free outlet.
- Power rating (BHP) does not include transmission losses.
- Performance ratings do not include the effects of appurtenances (accessories).
- The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
- Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
- Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## TUB – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)															
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500					
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM					
30	4 BLADES	TUB-30E432	1/2	698	0.50	75	7365	6186														
		TUB-30E424	1/2	801	0.50	78	7196	6237	5128													
		TUB-30E416	1/2	962	0.50	85	6696	5971	5108	4051												
		TUB-30E432	3/4	799	0.75	80	8431	7391	6314													
		TUB-30E424	3/4	917	0.75	81	8238	7412	6502	5373												
		TUB-30E416	3/4	1102	0.75	89	7670	7051	6332	5554	4574	3425										
		TUB-30E432	1	880	1.00	81	9286	8337	7400													
		TUB-30E424	1	1009	1.00	84	9065	8320	7517	6632												
		TUB-30E416	1	1213	1.00	91	8442	7887	7261	6567	5824	4882	3831									
		TUB-30E432	1½	1008	1.50	86	10636	9806	9001	8137												
		TUB-30E424	1½	1155	1.50	88	10377	9732	9050	8321	7533	6458										
		TUB-30E416	1½	1388	1.50	95	9660	9180	8660	8080	7470	6833	6053	5179	4251							
	TUB-30E432	2	1109	2.00	88	11702	10947	10206	9468	8630												
	TUB-30E424	2	1271	1.99	91	11419	10835	10225	9584	8902	8166	7175										
	TUB-30E416	2	1527	1.99	98	10628	10194	9732	9231	8685	8130	7550	6859	6085								
	TUB-30E432	3	1269	3.00	92	13390	12729	12074	11439	10784	10062	9035										
	TUB-30E424	3	1455	3.00	96	13072	12565	12040	11497	10932	10338	9720	9007	8063								
	TUB-30E416	3	1749	3.00	102	12173	11797	11403	10988	10543	10067	9583	9096	8577	7310	5874						
	TUB-30E432	5	1504	5.00	98	15870	15312	14757	14205	13671	13134	12552	11940	11200								
	TUB-30E424	5	1725	4.99	100	15497	15072	14636	14189	13731	13261	12775	12270	11755	10567							
	TUB-30E416	5	2074	5.00	107	14435	14120	13795	13458	13108	12742	12354	11951	11541	10721	9804						
8 BLADES	TUB-30E832	1/2	596	0.50	73	7042	6009															
	TUB-30E832	3/4	683	0.75	78	8070	7166	6174														
	TUB-30E832	1	751	1.00	79	8873	8053	7215														
	TUB-30E832	1½	860	1.49	83	10161	9448	8729	7932													
	TUB-30E832	2	947	2.00	86	11189	10543	9886	9228	8422												
	TUB-30E832	3	1083	2.99	90	12796	12232	11659	11090	10506	9811											
	TUB-30E832	5	1285	5.00	94	15182	14709	14229	13744	13264	12785	12265	11665	10930								
36	4 BLADES	TUB-36E432	3/4	667	0.75	79	11311	9600														
		TUB-36E428	3/4	715	0.73	83	11052	9615	7591													
		TUB-36E420	3/4	863	0.75	87	10454	9258	7737	5870												
		TUB-36E432	1	735	1.00	83	12464	10948	9057													
		TUB-36E428	1	788	1.00	83	12180	10906	9292													
		TUB-36E420	1	950	0.99	90	11508	10443	9145	7602	5651											
		TUB-36E432	1½	842	1.50	87	14279	12986	11467	9336												
		TUB-36E428	1½	902	1.49	88	13942	12855	11577	9965												
		TUB-36E420	1½	1088	1.50	94	13180	12269	11217	9993	8613	6967	5063									
		TUB-36E432	2	925	1.99	88	15686	14524	13205	11689												
		TUB-36E428	2	992	2.00	92	15333	14357	13251	11945	10192											
		TUB-36E420	2	1196	2.00	96	14488	13668	12753	11703	10527	9247	7733	5971								
	TUB-36E432	3	1060	3.00	92	17975	16975	15881	14659	13306												
	TUB-36E428	3	1136	3.00	95	17559	16718	15799	14772	13596	12150											
	TUB-36E420	3	1370	3.00	101	16596	15889	15124	14279	13344	12326	11232	10066	8660								
	TUB-36E432	5	1256	4.99	97	21299	20465	19579	18629	17599	16488	15255										
	TUB-36E428	5	1346	4.99	99	20805	20104	19359	18561	17696	16744	15690	14425									
	TUB-36E420	5	1625	5.00	105	19685	19095	18473	17813	17102	16333	15520	14651	13735	11780	9268						
	TUB-36E432	7½	1438	7.49	102	24386	23662	22905	22110	21270	20376	19420	18432	17289								
	TUB-36E428	7½	1541	7.50	106	23819	23211	22575	21907	21201	20450	19644	18773	17829	15252							
	TUB-36E420	7½	1860	7.50	109	22532	22019	21486	20930	20347	19730	19072	18381	17662	16110	14461						
8 BLADES	TUB-36E832	3/4	572	0.75	78	10682	9324															
	TUB-36E832	1	629	0.99	82	11747	10541	8865														
	TUB-36E832	1½	721	1.50	87	13465	12442	11218	9155													
	TUB-36E832	2	793	1.99	88	14809	13893	12839	11496													
	TUB-36E832	3	908	3.00	92	16957	16169	15295	14313	13064												
	TUB-36E832	5	1076	4.99	97	20094	19438	18736	17974	17149	16200	14951										
	TUB-36E832	7½	1232	7.49	101	23008	22439	21841	21208	20534	19819	19036	18115	16939								

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## TUB – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)																
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500						
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM						
42	4 BLADES	TUB-42E432	1	518	1.00	78	14698	12386															
		TUB-42E428	1	554	0.99	80	14494	12543	10022														
		TUB-42E420	1	650	0.99	84	13764	12165	10193														
		TUB-42E432	1½	593	1.50	82	16826	14805	12642														
		TUB-42E428	1½	634	1.50	82	16587	14890	13051														
		TUB-42E420	1½	745	1.50	88	15775	14412	12825	10935													
		TUB-42E432	2	653	2.00	84	18529	16694	14814	11969													
		TUB-42E428	2	697	1.99	85	18236	16700	15108	13051													
		TUB-42E420	2	818	1.99	91	17321	16094	14709	13119	11257												
		TUB-42E432	3	747	2.99	88	21196	19596	17991	16252													
		TUB-42E428	3	798	2.99	89	20878	19544	18171	16712	14790												
		TUB-42E420	3	938	2.99	95	19862	18805	17655	16379	14960	13359	11453										
	TUB-42E432	5	886	4.99	92	25140	23795	22434	21084	19615	17914												
	TUB-42E428	5	947	5.00	93	24776	23659	22510	21351	20135	18669	16802											
	TUB-42E420	5	1112	5.00	99	23547	22665	21732	20736	19660	18503	17247	15876	14348									
	TUB-42E432	7½	1014	7.49	96	28772	27598	26413	25227	24044	22767	21397	19449										
	TUB-42E428	7½	1084	7.50	97	28361	27387	26394	25380	24370	23319	22118	20705	18963									
	TUB-42E420	7½	1272	7.48	103	26935	26169	25371	24534	23652	22716	21726	20678	19557	17067								
	TUB-42E432	10	1116	9.98	99	31666	30601	29527	28444	27375	26292	25125	23899	22447									
	TUB-42E428	10	1193	10.00	100	31212	30330	29432	28519	27595	26676	25719	24652	23434	20282								
	TUB-42E420	10	1401	10.00	106	29666	28974	28257	27513	26739	25929	25077	24185	23252	21227	18959							
	8 BLADES	TUB-42E832	1	443	1.00	76	14013	12034															
		TUB-42E832	1½	507	1.49	80	16037	14319	12356														
		TUB-42E832	2	557	1.99	82	17618	16066	14417														
TUB-42E832		3	638	2.98	86	20181	18837	17436	15861														
TUB-42E832		5	757	5.00	91	23945	22821	21653	20468	19159	17465												
TUB-42E832		7½	866	7.48	94	27392	26415	25408	24373	23337	22216	20869											
TUB-42E832	10	953	9.97	98	30144	29258	28350	27420	26478	25532	24508	23311	21855										
48	4 BLADES	TUB-48E432	1½	521	1.50	83	20943	18053	14038														
		TUB-48E428	1½	558	1.48	84	20445	18014	14782														
		TUB-48E420	1½	674	1.50	89	19354	17330	14805	11778	7792												
		TUB-48E432	2	573	1.98	85	23033	20459	17326														
		TUB-48E428	2	614	2.00	85	22496	20333	17657														
		TUB-48E420	2	741	2.00	91	21278	19468	17298	14730	11706	7992											
		TUB-48E432	3	656	3.00	89	26369	24169	21622	18531													
		TUB-48E428	3	703	2.98	89	25757	23908	21768	19162													
		TUB-48E420	3	848	2.99	96	24350	22798	21034	18992	16688	14123	10837										
		TUB-48E432	5	778	5.00	93	31273	29453	27451	25201	22679												
		TUB-48E428	5	833	4.98	96	30520	28988	27304	25410	23221	20340											
		TUB-48E420	5	1006	5.00	100	28887	27600	26203	24651	22933	21050	19042	16845	14110								
	TUB-48E432	7½	890	7.48	96	35775	34200	32513	30683	28672	26513												
	TUB-48E428	7½	954	7.49	100	34954	33630	32212	30675	28985	27095	24898	21641										
	TUB-48E420	7½	1151	7.49	104	33051	31936	30752	29485	28099	26603	25006	23297	21523	17343	12556							
	TUB-48E432	10	980	9.98	100	39393	37971	36468	34867	33146	31284	29325	26700										
	TUB-48E428	10	1050	9.99	102	38471	37275	36011	34666	33220	31649	29924	27991	25468									
	TUB-48E420	10	1267	9.99	107	36382	35374	34316	33201	32012	30728	29365	27931	26403	23180	19353							
	8 BLADES	TUB-48E832	1½	446	1.49	82	19743	17445	13745														
		TUB-48E832	2	491	1.99	84	21735	19695	17032														
		TUB-48E832	3	562	3.00	89	24878	23140	21097	18150													
		TUB-48E832	5	666	4.99	93	29482	28046	26445	24629	22207												
		TUB-48E832	7½	763	7.50	98	33776	32537	31198	29732	28107	26072	22817										
		TUB-48E832	10	839	9.97	100	37140	36021	34829	33548	32168	30641	28768	26130									

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.





# Performance Data – Belt Driven

## TUB/TUBSH – Fabricated Steel Propeller

SIZE	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)												
						0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500		
						CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM		
24	TUB-24Z545	1/3	745	0.33	75	4638												
	TUB-24Z535	1/3	867	0.33	77	4755	4044	3202										
	TUB-24Z545	1/2	854	0.50	79	5316	4599											
	TUB-24Z535	1/2	995	0.50	80	5457	4799	4256										
	TUB-24Z545	3/4	978	0.75	83	6088	5492											
	TUB-24Z535	3/4	1136	0.75	83	6230	5627	5175	4601									
	TUB-24Z545	1	1076	1.00	85	6698	6174											
	TUB-24Z535	1	1251	1.00	86	6860	6301	5867	5437	4787								
	TUB-24Z545	1½	1233	1.50	88	7675	7233	6690										
	TUB-24Z535	1½	1433	1.50	89	7859	7356	6939	6592	6199	5664							
TUB-24Z545	2	1356	2.00	91	8441	8046	7574	7008										
TUB-24Z535	2	1576	2.00	92	8643	8179	7779	7445	7130	6749	6257							
TUB-24Z545	3	1552	3.00	95	9661	9322	8939	8497	7972									
TUB-24Z535	3	1803	2.99	96	9888	9474	9108	8780	8498	8224	7918	7544	7081					
30	TUB-30Z545	1/2	659	0.49	77	7509												
	TUB-30Z535	1/2	782	0.50	79	7524	6529	5307										
	TUB-30Z545	3/4	754	0.74	80	8592	7230											
	TUB-30Z535	3/4	895	0.75	82	8612	7760	6779										
	TUB-30Z545	1	830	0.99	83	9458	8255											
	TUB-30Z535	1	985	1.00	85	9478	8713	7857	6893									
	TUB-30Z545	1½	951	1.50	88	10837	9818	8389										
	TUB-30Z535	1½	1128	1.50	89	10854	10194	9478	8690	7829								
	TUB-30Z545	2	1047	2.00	89	11931	11023	9952										
	TUB-30Z535	2	1241	1.99	92	11941	11345	10710	10024	9285	8461							
TUB-30Z545	3	1198	3.00	93	13651	12874	11991	10899										
TUB-30Z535	3	1421	3.00	95	13673	13157	12615	12043	11437	10790	10124	9233						
TUB-30Z545	5	1420	5.00	97	16181	15537	14832	14065	13179									
TUB-30Z535	5	1592	4.21	98	15318	14860	14383	13887	13369	12824	12250	11666	11027					
36	TUB-36Z545	3/4	556	0.74	78	10948												
	TUB-36Z535	3/4	660	0.75	80	10974	9561	7857										
	TUB-36Z545	1	613	0.99	81	12071	10036											
	TUB-36Z535	1	727	1.00	82	12088	10825	9363										
	TUB-36Z545	1½	702	1.49	83	13823	12121											
	TUB-36Z535	1½	832	1.50	86	13834	12748	11538	10187									
	TUB-36Z545	2	772	2.00	86	15201	13686											
	TUB-36Z535	2	916	1.99	89	15230	14253	13188	12009	10656								
	TUB-36Z545	3	884	3.00	90	17407	16120	14612										
	TUB-36Z535	3	1049	3.00	93	17442	16596	15696	14729	13684	12558							
TUB-36Z545	5	1048	5.00	95	20636	19576	18382	17037										
TUB-36Z535	5	1243	4.99	98	20667	19960	19222	18448	17632	16768	15871	14902	13446					
TUB-36Z545	7½	1198	7.47	98	23590	22674	21675	20589	19362									
42	TUB-42Z545	1	445	1.00	78	15256	12431											
	TUB-42Z530	1	584	0.99	84	14474	12788	11030										
	TUB-42Z545	1½	510	1.50	82	17484	15055											
	TUB-42Z530	1½	669	1.50	88	16581	15111	13632	11985									
	TUB-42Z545	2	561	1.98	84	19233	17000											
	TUB-42Z530	2	736	2.00	91	18242	16907	15568	14163	12501								
	TUB-42Z545	3	642	3.00	88	22010	20059	18129										
	TUB-42Z530	3	843	2.99	96	20894	19730	18557	17389	16139	14038	12686						
	TUB-42Z545	5	761	4.98	92	26089	24454	22812	21086									
	TUB-42Z530	5	999	5.00	101	24760	23779	22792	21803	20820	19361	18704	17496	15916				
TUB-42Z545	7½	871	7.45	95	29860	28437	26979	25599	23980									
TUB-42Z530	7½	1144	7.47	103	28354	27498	26638	25774	24911	23707	23175	22247	21290	18972				
TUB-42Z545	10	959	9.98	98	32877	31588	30272	28964	27726									

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## TUB/TUBSH – Fabricated Steel Propeller

SIZE	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)											
						0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500	
						CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	
48	TUB-48Z545	1½	434	1.48	81	20257	16228										
	TUB-48Z535	1½	515	1.50	82	20297	17900	15084									
	TUB-48Z545	2	478	1.98	83	22310	18892										
	TUB-48Z535	2	567	1.98	84	22347	20200	17735									
	TUB-48Z545	3	547	2.99	86	25531	22642										
	TUB-48Z535	3	649	2.99	88	25578	23731	21691	19430								
	TUB-48Z545	5	648	4.98	91	30245	27894	25102									
	TUB-48Z535	5	770	4.99	93	30347	28810	27168	25396	23485	21305						
54	TUB-54Z545	1½	329	1.48	77	23718											
	TUB-54Z530	1½	430	1.50	84	22765	19928	16843									
	TUB-54Z545	2	362	1.99	81	26097	21886										
	TUB-54Z530	2	473	1.97	87	25041	22473	19758	16182								
	TUB-54Z545	3	415	3.00	84	29917	26306										
	TUB-54Z530	3	541	2.98	90	28641	26408	24105	21630	18122							
	TUB-54Z545	5	492	5.00	89	35468	32494	29137									
	TUB-54Z530	5	642	4.99	95	33988	32117	30197	28239	26151	23779						
60	TUB-60Z545	7½	563	7.49	92	40587	38036	35251									
	TUB-60Z530	7½	735	7.49	98	38912	37282	35620	33931	32210	30388	28473	25966				
	TUB-60Z545	10	619	9.96	95	44624	42326	39801	37198								
	TUB-60Z530	10	809	9.99	101	42829	41351	39849	38321	36783	35205	33544	31832	29823			
	TUB-60Z545	15	709	14.97	98	51112	49128	46997	44765	42433							
	TUB-60Z530	15	884	12.98	103	46800	45449	44080	42691	41287	39874	38424	36905	35359	31551		
	TUB-60Z545	20	690	19.98	100	65731	63127	60379	57542	54620							
	TUB-60Z530	25	743	24.95	102	70780	68371	65848	63203	60607	57622						

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Direct Drive

## TUD – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	CATALOG NUMBER	MOTOR HP	FAN RPM	MAX. BHP	LwIA	STATIC PRESSURE (IN. W.G.)										
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
14	4 BLADES	TUD-14E416	1/4	1160	0.04	68	926										
		TUD-14E420	1/4	1160	0.05	68	1022	731									
		TUD-14E424	1/4	1160	0.07	67	1133	841									
		TUD-14E428	1/4	1160	0.07	68	1194	884									
		TUD-14E432	1/4	1160	0.09	70	1276										
		TUD-14E416	1/4	1750	0.16	78	1396	1233	1029								
	TUD-14E420	1/4	1750	0.19	78	1542	1387	1172									
	TUD-14E424	1/4	1750	0.23	78	1710	1529	1344									
	TUD-14E428	1/4	1750	0.26	79	1801	1617	1403									
	TUD-14E432	1/3	1750	0.31	80	1925	1708										
	TUD-14E816	1/4	1160	0.06	70	907	668										
	TUD-14E820	1/4	1160	0.07	71	1038	813										
	TUD-14E824	1/4	1160	0.09	71	1172	940										
	TUD-14E828	1/4	1160	0.11	71	1259	1012										
	TUD-14E832	1/4	1160	0.12	72	1334											
	TUD-14E816	1/4	1750	0.20	82	1368	1254	1085									
	TUD-14E820	1/4	1750	0.25	82	1566	1447	1286									
	TUD-14E824	1/3	1750	0.30	83	1768	1629	1475									
TUD-14E828	1/2	1750	0.37	83	1899	1757	1593										
TUD-14E832	1/2	1750	0.41	83	2012	1873											
16	4 BLADES	TUD-16E416	1/4	1160	0.07	72	1350	1009									
		TUD-16E420	1/4	1160	0.08	71	1503	1167									
		TUD-16E424	1/4	1160	0.10	70	1674	1344									
		TUD-16E428	1/4	1160	0.12	72	1795	1435									
		TUD-16E432	1/4	1160	0.15	72	1921	1526									
		TUD-16E416	1/4	1750	0.24	82	2037	1839	1594								
	TUD-16E420	1/3	1750	0.29	83	2268	2075	1837	1487								
	TUD-16E424	1/3	1750	0.36	81	2525	2320	2099									
	TUD-16E428	1/2	1750	0.42	82	2707	2483	2241									
	TUD-16E432	1/2	1750	0.50	83	2898	2648	2392									
	TUD-16E816	1/4	1160	0.10	74	1335	1096										
	TUD-16E820	1/4	1160	0.12	75	1554	1304										
	TUD-16E824	1/4	1160	0.14	75	1754	1497										
	TUD-16E828	1/4	1160	0.18	73	1930	1657										
	TUD-16E832	1/4	1160	0.20	74	2066	1788										
	TUD-16E816	1/3	1750	0.33	85	2014	1875	1707	1479								
	TUD-16E820	1/2	1750	0.41	85	2345	2201	2025	1791								
	TUD-16E824	1/2	1750	0.50	86	2646	2486	2309									
TUD-16E828	3/4	1750	0.61	86	2912	2744	2555										
TUD-16E832	3/4	1750	0.71	86	3117	2965	2768										
18	4 BLADES	TUD-18E412	1/4	1160	0.08	75	1604	1187									
		TUD-18E416	1/4	1160	0.09	74	1886	1487									
		TUD-18E420	1/4	1160	0.12	73	2117	1727									
		TUD-18E424	1/4	1160	0.15	72	2362	1989									
		TUD-18E428	1/4	1160	0.19	74	2568	2156									
		TUD-18E432	1/4	1160	0.22	74	2754	2299									
	TUD-18E412	1/4	1750	0.27	85	2420	2161	1875	1547								
	TUD-18E416	1/3	1750	0.32	87	2846	2609	2328	2005								
	TUD-18E420	1/2	1750	0.41	85	3194	2950	2686	2344								
	TUD-18E424	1/2	1750	0.53	85	3563	3338	3080	2753								
	TUD-18E428	3/4	1750	0.64	85	3874	3612	3333	3010								
	TUD-18E432	3/4	1750	0.76	86	4154	3884	3567	3203								
	TUD-18E812	1/4	1160	0.11	74	1543	1274	974									
	TUD-18E816	1/4	1160	0.14	76	1879	1612	1247									
	TUD-18E820	1/4	1160	0.18	77	2219	1935										
	TUD-18E824	1/4	1160	0.22	76	2501	2210										
	TUD-18E828	1/3	1160	0.28	75	2805	2494										
	TUD-18E832	1/3	1160	0.34	76	3024	2742										
TUD-18E812	1/3	1750	0.36	87	2328	2152	1973	1784									
TUD-18E816	1/2	1750	0.49	88	2835	2670	2487	2279	2025								
TUD-18E820	3/4	1750	0.62	89	3348	3175	2979	2745	2458								
TUD-18E824	3/4	1750	0.77	89	3773	3590	3391	3182	2849								
TUD-18E828	1	1750	0.96	89	4232	4039	3826	3590	3254								

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Performance ratings do not include the effects of appurtenances (accessories).
3. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
4. Values shown are for inlet LwIA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
5. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Direct Drive

## TUD – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	CATALOG NUMBER	MOTOR HP	FAN RPM	MAX. BHP	LwIA	STATIC PRESSURE (IN. W.G.)												
							0.000 CFM	0.125 CFM	0.250 CFM	0.375 CFM	0.500 CFM	0.625 CFM	0.750 CFM	0.875 CFM	1.000 CFM	1.250 CFM	1.500 CFM		
21	4 BLADES	TUD-21E412	1/4	1160	0.12	78	2281	1735											
		TUD-21E416	1/4	1160	0.15	78	2745	2235											
		TUD-21E420	1/4	1160	0.19	77	3134	2656											
		TUD-21E424	1/4	1160	0.25	75	3547	3082											
		TUD-21E428	1/3	1160	0.31	76	3903	3343											
		TUD-21E432	1/2	1160	0.37	77	4175	3627											
	4 BLADES	TUD-21E412	1/2	1750	0.40	89	3440	3090	2728	2308									
		TUD-21E416	1/2	1750	0.51	90	4140	3828	3476	3082	2557								
		TUD-21E420	3/4	1750	0.66	91	4728	4429	4102	3723	3152								
		TUD-21E424	1	1750	0.87	88	5352	5066	4745	4373	3852								
		TUD-21E428	1	1750	1.05	88	5889	5521	5147	4759	4286								
		TUD-21E432	1.5	1750	1.28	89	6298	5961	5585	5150	4672								
	8 BLADES	TUD-21E812	1/4	1160	0.17	79	2203	1869	1503										
		TUD-21E816	1/4	1160	0.23	80	2760	2426	2008										
		TUD-21E820	1/3	1160	0.29	83	3289	2957	2491										
		TUD-21E824	1/2	1160	0.37	83	3789	3443	3008										
		TUD-21E828	1/2	1160	0.47	81	4248	3901	3440										
		TUD-21E832	3/4	1160	0.58	81	4646	4288	3827										
8 BLADES	TUD-21E812	3/4	1750	0.59	91	3323	3095	2877	2661	2408	2154								
	TUD-21E816	3/4	1750	0.80	92	4163	3953	3726	3478	3200	2891								
	TUD-21E820	1	1750	1.01	93	4961	4757	4529	4264	3951	3588								
	TUD-21E824	1 1/2	1750	1.28	93	5716	5497	5262	5007	4726	4341								
	TUD-21E828	1 1/2	1750	1.63	93	6408	6192	5956	5691	5389	4979								
24	4 BLADES	TUD-24E412	1/4	860	0.06	71	2303	1261											
		TUD-24E416	1/4	860	0.08	76	2829	1861											
		TUD-24E420	1/4	860	0.11	75	3280	2356											
		TUD-24E424	1/4	860	0.15	72	3758	2874											
		TUD-24E428	1/4	860	0.19	73	4174	3155											
		TUD-24E432	1/4	860	0.23	74	4456	3476											
	4 BLADES	TUD-24E412	1/4	1160	0.15	79	3106	2402	1526										
		TUD-24E416	1/4	1160	0.21	85	3816	3172	2337										
		TUD-24E420	1/3	1160	0.28	83	4424	3854	2958										
		TUD-24E424	1/2	1160	0.37	80	5069	4499	3678										
		TUD-24E428	1/2	1160	0.46	81	5631	4893	4091										
		TUD-24E432	3/4	1160	0.57	82	6010	5367	4522										
	4 BLADES	TUD-24E412	1/2	1750	0.52	92	4686	4207	3762	3232	2657								
		TUD-24E416	3/4	1750	0.72	93	5758	5345	4910	4431	3872	3196							
		TUD-24E420	1	1750	0.96	95	6674	6316	5926	5501	4901	4060							
		TUD-24E424	1/2	1750	1.30	93	7648	7292	6903	6471	5942	5213							
		TUD-24E428	1/2	1750	1.59	92	8494	8003	7513	7032	6500	5848							
		TUD-24E432	2	1750	1.96	91	9067	8667	8226	7728	7156								
	8 BLADES	TUD-24E812	1/4	860	0.10	74	2234	1672											
		TUD-24E816	1/4	860	0.13	76	2866	2275											
		TUD-24E820	1/4	860	0.18	78	3444	2862											
		TUD-24E824	1/4	860	0.23	77	4040	3455											
		TUD-24E828	1/3	860	0.30	76	4530	3964											
		TUD-24E832	1/2	860	0.38	76	5011	4383											
	8 BLADES	TUD-24E812	1/4	1160	0.25	82	3014	2601	2163	1710									
		TUD-24E816	1/3	1160	0.34	83	3866	3458	2976	2460									
		TUD-24E820	1/2	1160	0.44	86	4646	4264	3756	3104									
		TUD-24E824	3/4	1160	0.57	86	5450	5053	4562	3919									
		TUD-24E828	3/4	1160	0.73	87	6110	5730	5247	4415									
		TUD-24E832	1	1160	0.92	87	6759	6313	5822	5129									
	8 BLADES	TUD-24E812	1	1750	0.87	93	4546	4260	3993	3743	3448	3122	2820	2531	2246				
		TUD-24E816	1 1/2	1750	1.16	95	5833	5573	5296	4996	4675	4336	3991	3651	3262				
		TUD-24E820	1 1/2	1750	1.51	97	7009	6771	6510	6218	5876	5488	5040	4611					
		TUD-24E824	2	1750	1.97	97	8222	7970	7701	7408	7080	6711	6301	5824					
		TUD-24E828	3	1750	2.53	96	9217	8979	8720	8435	8115	7740	7267						
		TUD-24E832	3	1750	3.19	95	10197	9910	9609	9293	8965	8629	8235						

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Performance ratings do not include the effects of appurtenances (accessories).
3. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
4. Values shown are for inlet LwIA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
5. Sound power values shown are at the peak cataloged pressure for each RPM.



# Performance Data – Direct Drive

## TUD – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	CATALOG NUMBER	MOTOR HP	FAN RPM	MAX. BHP	LwIA	STATIC PRESSURE (IN. W.G.)														
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500				
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM				
42	4 BLADES	TUD-42E412	1 1/2	860	1.28	92	13140	11810	10451	8871											
		TUD-42E416	2	860	1.68	93	16010	14682	13215	11763	10105										
		TUD-42E420	3	860	2.33	93	18720	17701	16489	14937	13157	11292									
		TUD-42E424	3	860	3.07	91	21353	20188	18911	17478	15806	13928									
		TUD-42E428	5	860	3.79	90	23598	22298	20894	19348	17779	16024									
		TUD-42E432	5	860	4.61	91	25195	24057	22759	21159	19346	17389									
	8 BLADES	TUD-42E412	3	1160	3.14	100	17724	16742	15751	14764	13690	12501	11333								
		TUD-42E416	5	1160	4.14	101	21595	20628	19617	18541	17423	16354	15263	14007							
		TUD-42E420	7 1/2	1160	5.73	100	25251	24520	23728	22858	21860	20702	19467	18125	16775						
		TUD-42E424	7 1/2	1160	7.53	97	28802	27955	27067	26133	25142	24085	22947	21691	20324						
		TUD-42E428	10	1160	9.32	98	31830	30882	29896	28867	27782	26635	25460	24303	23113	20157					
		TUD-42E432	10	1160	11.33	99	33985									22184					
		TUD-42E812	2	860	2.06	92	12300	11583	10801	9934	9021										
		TUD-42E816	3	860	2.86	95	16290	15428	14582	13776	12916	11885	10736								
		TUD-42E820	5	860	3.55	96	18761	18082	17327	16457	15394	14210	12863								
		TUD-42E824	5	860	4.80	96	22413	21541	20633	19688	18704	17610	16338	14685							
	TUD-42E828	7 1/2	860	6.04	93	25243	24386	23487	22541	21549	20475	19244	17807								
	TUD-42E832	7 1/2	860	7.37	93	27598	26792	25932	25005	23995	22871	21602									
	TUD-42E812	5	1160	5.06	100	16590	16069	15524	14952	14344	13701	13042	12360	11671							
	TUD-42E816	7 1/2	1160	7.02	103	21973	21331	20696	20067	19449	18854	18254	17613	16895	15283						
TUD-42E820	10	1160	8.69	104	25305	24813	24294	23743	23154	22516	21797	20996	20151	18291							
TUD-42E824	10	1160	10.92	102	30232	29591	28937	28267	27581												
48	4 BLADES	TUD-48E412	2	860	1.70	92	16251	14648	12792	10771	8835										
		TUD-48E416	3	860	2.25	95	20728	18913	17216	15271	12978										
		TUD-48E420	3	860	3.14	97	25088	23804	22209	19933	17495										
		TUD-48E424	5	860	4.29	97	29053	27494	25837	24085	21957	19015									
		TUD-48E428	7 1/2	860	5.56	96	32569	30855	29081	27266	25276	22948									
		TUD-48E432	7 1/2	860	6.86	96	35446	33831	32070	30092	27918	25638	22226								
	8 BLADES	TUD-48E412	5	1160	4.17	101	21921	20767	19526	18170	16711	15194	13749	12326							
		TUD-48E416	7 1/2	1160	5.53	102	27958	26598	25274	24015	22755	21318	19716	18001							
		TUD-48E420	7 1/2	1160	7.72	105	33840	32924	31918	30785	29416	27686	25935	24111	22260						
		TUD-48E424	10	1160	10.54	102	39188	38048	36869	35650	34395	33105	31713	30107	28228						
		TUD-48E812	3	860	2.97	95	16015	15029	13999	12922	11812	10663									
		TUD-48E816	5	860	3.89	98	20901	19898	18822	17628	16410	15249	13927								
		TUD-48E820	5	860	5.14	99	25901	24978	23985	22902	21694	20346	18803	17017							
		TUD-48E824	7 1/2	860	6.67	102	30906	29653	28406	27179	25988	24693	23136	21317							
		TUD-48E828	10	860	8.44	101	34330	33363	32323	31191	29936	28506	26837	24737							
		TUD-48E832	10	860	10.74	99	38526	37479	36355	35133	33775	32222	30463	28499							
		TUD-48E812	7 1/2	1160	7.32	104	21602	20877	20136	19378	18598	17799	16988	16164	15325	13592					
		TUD-48E816	10	1160	9.58	105	28191	27459	26699	25909	25083	24197	23277	22376	21515	19737	17574				
TUD-48E820	10	1160	10.99	107	34937	34263															

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Performance ratings do not include the effects of appurtenances (accessories).
3. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
4. Values shown are for inlet LwIA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
5. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## THB – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)											
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500	
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	
14	4 BLADES	THB-14E432	1/4	1680	0.25	75	1650											
		THB-14E428	1/4	1780	0.25	76	1705	1453										
		THB-14E420	1/4	1994	0.25	80	1687	1527	1333									
		THB-14E432	1/3	1849	0.33	78	1816											
		THB-14E428	1/3	1957	0.33	78	1875	1660										
		THB-14E420	1/3	2197	0.33	82	1859	1715	1555									
		THB-14E432	1/2	2116	0.50	82	2078											
		THB-14E428	1/2	2242	0.50	82	2148	1971	1689									
		THB-14E420	1/2	2518	0.50	87	2130	2007	1872	1720								
	THB-14E432	3/4	2422	0.75	85	2378	2200											
	THB-14E428	3/4	2566	0.75	86	2458	2309	2113										
	THB-14E420	3/4	2880	0.75	89	2436	2330	2216	2094	1955	1726							
	8 BLADES	THB-14E832	1/4	1547	0.25	72	1485											
		THB-14E832	1/3	1702	0.33	75	1634											
THB-14E832		1/2	1946	0.50	78	1868												
THB-14E832		3/4	2230	0.75	82	2141												
16	4 BLADES	THB-16E432	1/4	1410	0.25	73	2099	1625										
		THB-16E428	1/4	1500	0.25	75	2139	1832										
		THB-16E420	1/4	1710	0.25	79	2091	1870	1560									
		THB-16E432	1/3	1550	0.33	76	2308	1939										
		THB-16E428	1/3	1651	0.33	77	2354	2093										
		THB-16E420	1/3	1882	0.33	82	2302	2104	1873									
		THB-16E432	1/2	1775	0.50	80	2643	2384										
		THB-16E428	1/2	1890	0.50	81	2695	2480	2123									
		THB-16E420	1/2	2154	0.50	85	2634	2465	2276	2033								
		THB-16E432	3/4	2032	0.75	83	3026	2816	2378									
		THB-16E428	3/4	2164	0.75	85	3086	2905	2667									
		THB-16E420	3/4	2466	0.75	89	3016	2870	2711	2539	2305							
	8 BLADES	THB-16E432	1	2237	0.99	86	3331	3148	2845									
		THB-16E428	1	2382	1.01	88	3397	3235	3038	2756								
		THB-16E420	1	2714	0.99	91	3319	3188	3046	2895	2730	2489						
		THB-16E832	1/4	1270	0.25	71	2017											
		THB-16E832	1/3	1395	0.33	73	2215											
		THB-16E832	1/2	1600	0.50	76	2541											
18	4 BLADES	THB-18E432	1/4	1208	0.25	73	2592	2150										
		THB-18E428	1/4	1287	0.25	74	2605	2240										
		THB-18E420	1/4	1500	0.25	78	2544	2254										
		THB-18E432	1/3	1330	0.33	75	2854	2480										
		THB-18E428	1/3	1416	0.33	77	2866	2557										
		THB-18E420	1/3	1651	0.33	81	2800	2541	2216									
		THB-18E432	1/2	1523	0.50	79	3268	2962	2508									
		THB-18E428	1/2	1622	0.50	81	3283	3030										
		THB-18E420	1/2	1892	0.50	85	3209	2988	2737									
		THB-18E432	3/4	1743	0.75	83	3740	3483	3138									
		THB-18E428	3/4	1855	0.75	84	3755	3542	3257									
		THB-18E420	3/4	2163	0.75	89	3668	3478	3267	3033								
	8 BLADES	THB-18E432	1	1919	1.00	86	4118	3889	3606	3226								
		THB-18E428	1	2043	1.00	87	4135	3946	3711	3359								
		THB-18E420	1	2382	1.00	91	4040	3868	3682	3481	3246							
		THB-18E432	1 1/2	2197	1.50	90	4715	4519	4293	4013	3671							
		THB-18E428	1 1/2	2339	1.50	91	4734	4573	4386	4155	3813							
		THB-18E420	1 1/2	2727	1.50	95	4625	4477	4319	4150	3973	3773						
8 BLADES	THB-18E832	1/4	1065	0.25	71	2550												
	THB-18E832	1/3	1173	0.33	73	2808												
	THB-18E832	1/2	1344	0.50	76	3218	2893											
	THB-18E832	3/4	1538	0.75	80	3682	3430											
	THB-18E832	1	1693	1.00	83	4053	3835											
THB-18E832	1 1/2	1938	1.50	86	4640	4458	4200											

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## THB – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)																
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500						
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM						
21	4 BLADES	THB-21E432	1/4	1008	0.25	72	3256	2615															
		THB-21E428	1/4	1077	0.25	73	3274	2731															
		THB-21E420	1/4	1260	0.25	77	3188	2772															
		THB-21E432	1/3	1109	0.33	74	3582	3062															
		THB-21E428	1/3	1180	0.33	75	3587	3119															
		THB-21E420	1/3	1385	0.33	80	3504	3138	2593														
		THB-21E432	1/2	1270	0.50	78	4102	3690															
		THB-21E428	1/2	1357	0.50	79	4125	3741															
		THB-21E420	1/2	1586	0.50	84	4013	3703	3313	2700													
		THB-21E432	3/4	1453	0.75	81	4693	4351	3827														
		THB-21E428	3/4	1551	0.75	83	4715	4391	3971														
		THB-21E420	3/4	1816	0.75	88	4594	4330	4022	3632													
	THB-21E432	1	1599	1.00	84	5165	4862	4457															
	THB-21E428	1	1708	1.00	86	5192	4904	4553															
	THB-21E420	1	1999	1.00	91	5057	4820	4553	4239	3829													
	THB-21E432	1½	1832	1.50	88	5917	5660	5351	4924														
	THB-21E428	1½	1955	1.50	90	5943	5696	5413	5075														
	THB-21E420	1½	2288	1.50	94	5789	5584	5361	5113	4830	4484	4021											
	THB-21E432	2	2015	2.00	90	6508	6278	6012	5685	5226													
	THB-21E428	2	2152	2.00	93	6542	6320	6073	5790	5454													
	THB-21E420	2	2519	2.00	97	6373	6189	5991	5777	5541	5275	4958	4548										
	8 BLADES	THB-21E832	1/4	880	0.25	68	3245																
		THB-21E832	1/3	966	0.33	71	3563																
		THB-21E832	1/2	1106	0.50	76	4079	3630															
THB-21E832		3/4	1268	0.75	80	4676	4319																
THB-21E832		1	1394	1.00	82	5141	4828	4290															
24	4 BLADES	THB-24E432	1/3	950	0.33	73	4396	3676															
		THB-24E424	1/3	1092	0.33	76	4376	3800															
		THB-24E416	1/3	1315	0.33	82	4113	3659	3008														
		THB-24E432	1/2	1088	0.50	77	5034	4483															
		THB-24E424	1/2	1251	0.50	79	5013	4527	3920														
		THB-24E416	1/2	1506	0.50	87	4711	4327	3841	3188													
		THB-24E432	3/4	1245	0.75	80	5761	5310	4479														
		THB-24E424	3/4	1432	0.75	83	5738	5323	4839	4249													
		THB-24E416	3/4	1724	0.75	91	5393	5065	4681	4202	3610												
		THB-24E432	1	1372	1.00	82	6348	5953	5379														
		THB-24E424	1	1575	1.00	87	6311	5938	5518	5027	4412												
		THB-24E416	1	1900	1.00	94	5943	5650	5318	4926	4443	3904											
	THB-24E432	1½	1570	1.50	86	7264	6930	6510	5851														
	THB-24E424	1½	1804	1.50	91	7229	6907	6557	6169	5728	5218												
	THB-24E416	1½	2175	1.50	98	6803	6550	6274	5967	5613	5200	4722	4255										
	THB-24E432	2	1728	2.01	89	7995	7696	7342	6877														
	THB-24E424	2	1984	2.00	94	7950	7659	7348	7012	6642	6230	5764											
	THB-24E416	2	2392	2.00	100	7482	7254	7009	6743	6448	6117	5739	5304	4883									
	THB-24E432	3	1977	3.00	92	9148	8891	8601	8263	7831	7159												
	THB-24E424	3	2272	3.00	98	9104	8852	8588	8308	8010	7689	7341	6966	6538									
	THB-24E416	3	2738	3.00	103	8564	8366	8158	7937	7702	7446	7167	6862	6518	5765								
	8 BLADES	THB-24E832	1/3	814	0.33	72	4373	3608															
		THB-24E832	1/2	931	0.50	76	5001	4414															
		THB-24E832	3/4	1066	0.75	80	5727	5248															
THB-24E832		1	1174	1.00	82	6307	5886	5274															
THB-24E832		1½	1344	1.50	85	7220	6864	6417	5705														
THB-24E832	2	1480	2.00	87	7951	7633	7256	6761															
THB-24E832	3	1694	3.00	91	9100	8828	8520	8160	7702														

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.



# Performance Data – Belt Driven

## THB – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)																		
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500								
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM								
42	4 BLADES	THB-42E432	1	518	1.00	76	13558	11592																	
		THB-42E428	1	554	1.00	77	13530	11710																	
		THB-42E420	1	654	1.00	84	12913	11423	9646																
		THB-42E432	1½	593	1.50	81	15521	13889	11306																
		THB-42E428	1½	634	1.50	81	15484	13960	11953																
		THB-42E420	1½	748	1.50	87	14769	13484	12077	10249															
		THB-42E432	2	653	2.00	83	17091	15648	13730																
		THB-42E428	2	697	2.00	84	17023	15664	13972	11663															
		THB-42E420	2	824	2.00	90	16270	15113	13872	12443	10456														
		THB-42E432	3	747	3.00	86	19551	18323	16849	14782															
		THB-42E428	3	798	3.00	87	19490	18328	16980	15343															
		THB-42E420	3	943	3.00	93	18620	17617	16557	15439	14139	12477													
	THB-42E432	5	886	5.00	91	23189	22178	21039	19720	18015															
	THB-42E428	5	947	5.00	93	23129	22168	21112	19918	18539	16992														
	THB-42E420	5	1117	5.00	98	22055	21216	20342	19434	18493	17457	16264	14805												
	THB-42E432	7½	1014	7.50	95	26539	25667	24717	23665	22479	21031														
	THB-42E428	7½	1083	7.50	97	26450	25619	24728	23763	22692	21495	20199	18652												
	THB-42E420	7½	1279	7.50	102	25254	24524	23772	22997	22199	21381	20512	19548	18471											
	THB-42E432	10	1116	10.00	98	29209	28422	27579	26667	25670	24558	23232	21468												
	THB-42E428	10	1192	10.00	100	29112	28361	27568	26723	25813	24816	23724	22556	21278											
	THB-42E420	10	1408	10.00	105	27801	27140	26462	25768	25054	24327	23583	22803	21956	20009										
	8 BLADES	THB-42E832	1	447	1.00	75	13175	11297																	
		THB-42E832	1½	512	1.50	79	15091	13566																	
		THB-42E832	2	563	2.00	82	16594	15255	13191																
THB-42E832		3	645	3.00	85	19011	17883	16443																	
THB-42E832		5	765	5.00	90	22548	21625	20551	19228																
THB-42E832		7½	875	7.50	93	25790	24996	24112	23097	21892															
THB-42E832	10	963	10.00	96	28383	27668	26890	26026	25047	23897															
48	4 BLADES	THB-48E432	1½	520	1.50	77	19031	16455																	
		THB-48E428	1½	559	1.50	79	18898	16696																	
		THB-48E420	1½	674	1.50	87	17855	15941	13802																
		THB-48E432	2	572	2.00	81	20935	18683	15408																
		THB-48E428	2	615	2.00	82	20791	18865	15854																
		THB-48E420	2	742	2.00	90	19656	17934	16041	13977															
		THB-48E432	3	655	3.00	83	23972	22078	19595																
		THB-48E428	3	704	3.00	85	23799	22179	20043																
		THB-48E420	3	849	3.00	93	22491	21001	19405	17688	15842														
		THB-48E432	5	776	5.00	88	28401	26850	25029	22727															
		THB-48E428	5	835	5.00	90	28228	26903	25349	23354	20453														
		THB-48E420	5	1006	5.00	98	26650	25405	24100	22723	21271	19784	18030												
	THB-48E432	7½	888	7.50	92	32500	31167	29677	27941	25847	23366														
	THB-48E428	7½	955	7.50	94	32285	31146	29871	28392	26556	24104														
	THB-48E420	7½	1153	7.50	102	30544	29463	28345	27183	25970	24707	23421	22077	20447											
	THB-48E432	10	977	10.00	95	35757	34557	33245	31783	30084	28118	25869													
	THB-48E428	10	1052	10.01	96	35564	34539	33419	32172	30724	28977	26733													
	THB-48E420	10	1269	10.00	105	33617	32638	31631	30593	29520	28408	27259	26091	24903	21961										
	8 BLADES	THB-48E832	1½	450	1.50	76	18500	16045																	
		THB-48E832	2	495	2.00	82	20350	18235	14558																
		THB-48E832	3	566	3.00	83	23269	21503	18960																
		THB-48E832	5	672	5.00	88	27627	26196	24447	22016															
		THB-48E832	7½	770	7.50	95	31656	30432	29030	27315	25076	22021													
		THB-48E832	10	847	10.00	97	34822	33721	32496	31092	29353	27218	24413												

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## THB – Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)											
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500	
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	
54	6	THB-54C625	1½	394	1.50	71	21897	17994										
		THB-54C620	1½	440	1.50	73	21611	18190										
		THB-54C610	1½	543	1.50	82	20863	18259	15430									
		THB-54C625	2	434	2.00	73	24120	20569										
		THB-54C620	2	484	2.00	76	23773	20814										
		THB-54C610	2	597	2.00	85	22937	20546	18227	14953								
		THB-54C625	3	496	3.00	78	27566	24386	20520									
		THB-54C620	3	554	3.00	81	27211	24742	21443									
		THB-54C610	3	683	3.00	89	26242	24141	22159	19871	16869							
		THB-54C625	5	589	5.00	82	32735	30031	27525									
		THB-54C620	5	657	5.00	85	32270	30259	27822	24905								
		THB-54C610	5	811	5.01	92	31159	29383	27651	26012	24113	21710						
		THB-54C625	7½	674	7.50	86	37459	35090	32809	30595								
		THB-54C620	7½	752	7.50	89	36936	35212	33258	30884	28337							
		THB-54C610	7½	928	7.50	96	35655	34098	32567	31092	29659	28035	26032	23824				
		THB-54C625	10	742	10.00	89	41238	39083	36958	35018	32681							
		THB-54C620	10	828	10.00	92	40669	39118	37408	35450	33143	30864						
		THB-54C610	10	1021	10.00	99	39228	37811	36413	35038	33732	32417	30930	29149	27180			
THB-54C625	15	849	15.00	93	47185	45299	43431	41621	39944	38009								
THB-54C620	15	948	15.00	96	46563	45223	43785	42221	40460	38453	36413	34431						
THB-54C610	15	1061	11.21	99	40765	39400	38053	36724	35451	34203	32865	31286	29466					
60	6	THB-60C625	2	392	2.00	77	27049	22406										
		THB-60C620	2	427	2.00	79	27473	23428										
		THB-60C610	2	537	2.00	86	26563	23396	19723									
		THB-60C625	3	449	3.00	80	30982	27180										
		THB-60C620	3	489	3.00	84	31462	28132	23095									
		THB-60C610	3	615	3.00	90	30421	27703	24663	21197								
		THB-60C625	5	532	5.00	86	36709	33656	29591									
		THB-60C620	5	580	5.00	89	37317	34630	31220	26315								
		THB-60C610	5	729	5.00	94	36060	33800	31366	28714	25822	22182						
		THB-60C625	7½	609	7.50	90	42022	39428	36332									
		THB-60C620	7½	664	7.50	93	42721	40428	37743	34361	29774							
		THB-60C610	7½	835	7.50	98	41303	39347	37281	35082	32734	30241	27329					
		THB-60C625	10	670	10.00	93	46231	43907	41221	37995								
		THB-60C620	10	731	10.00	96	47032	44974	42651	39898	36496	32032						
		THB-60C610	10	919	10.00	100	45458	43689	41840	39898	37848	35687	33418	30851	27786			
		THB-60C625	15	767	15.00	96	52925	50926	48709	46216	43255							
		THB-60C620	15	837	15.00	100	53852	52078	50143	47991	45504	42593	38976	34603				
		THB-60C610	15	955	11.22	102	47239	45539	43768	41918	39973	37927	35795	33500	30821			
THB-60C625	20	845	20.00	99	58307	56508	54555	52401	50042	47164								
THB-60C620	20	921	20.00	102	59256	57656	55940	54079	52022	49684	47023	43832	40102					
THB-60C625	25	910	25.00	101	62792	61130	59350	57421	55320	53026	50087							

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## THB – Fabricated Steel Propeller

SIZE	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)											
						0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500	
						CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	
24	THB-24Z545	1/3	751	0.33	71	4354											
	THB-24Z535	1/3	876	0.33	74	4481	3914										
	THB-24Z545	1/2	860	0.50	74	4986											
	THB-24Z535	1/2	1002	0.50	78	5125	4645	3953									
	THB-24Z545	3/4	984	0.75	78	5705											
	THB-24Z535	3/4	1148	0.75	81	5872	5464	4988									
	THB-24Z545	1	1084	1.00	80	6285											
	THB-24Z535	1	1263	1.00	84	6460	6095	5677	5153								
	THB-24Z545	1½	1250	1.50	82	7248	6266										
	THB-24Z535	1½	1446	1.50	87	7396	7082	6734	6353	5851							
THB-24Z545	2	1366	2.00	85	7920	7072											
THB-24Z535	2	1591	2.00	90	8138	7855	7548	7212	6851	6315							
THB-24Z545	3	1563	3.00	89	9062	8367											
THB-24Z535	3	1821	3.00	93	9314	9069	8809	8531	8233	7923	7548						
30	THB-30Z545	1/2	664	0.50	73	6683											
	THB-30Z535	1/2	791	0.50	77	6945	6109										
	THB-30Z545	3/4	760	0.75	77	7649											
	THB-30Z535	3/4	905	0.75	84	7946	7236	6350									
	THB-30Z545	1	837	1.00	79	8424											
	THB-30Z535	1	996	1.00	84	8745	8110	7374									
	THB-30Z545	1½	958	1.50	83	9642	8228										
	THB-30Z535	1½	1141	1.50	90	10018	9473	8864	8163								
	THB-30Z545	2	1053	2.00	85	10598	9498										
	THB-30Z535	2	1255	2.00	93	11019	10528	9991	9402	8672							
THB-30Z545	3	1207	3.00	89	12148	11272											
THB-30Z535	3	1436	3.00	94	12608	12184	11730	11240	10719	10102	9182						
THB-30Z545	5	1431	5.00	94	14403	13710	12704										
THB-30Z535	5	1592	4.08	97	13978	13597	13196	12770	12318	11842	11292	10557					
36	THB-36Z545	3/4	561	0.75	74	9757											
	THB-36Z535	3/4	668	0.75	78	10135	8950										
	THB-36Z545	1	617	1.00	77	10731											
	THB-36Z535	1	735	1.00	84	11151	10097	8731									
	THB-36Z545	1½	707	1.50	80	12296											
	THB-36Z535	1½	842	1.50	85	12775	11876	10838									
	THB-36Z545	2	778	2.00	82	13531	11281										
	THB-36Z535	2	926	2.00	90	14049	13242	12333	11248								
	THB-36Z545	3	890	3.00	86	15479	13936										
	THB-36Z535	3	1060	3.00	94	16082	15386	14625	13795	12793							
THB-36Z545	5	1056	5.00	91	18366	17190											
THB-36Z535	5	1257	5.00	98	19071	18491	17875	17216	16517	15749	14760						
THB-36Z545	7½	1208	7.50	94	21010	20027	18637										
42	THB-42Z545	1	448	1.00	73	13629											
	THB-42Z530	1	593	1.00	83	13465	12044	10446									
	THB-42Z545	1½	512	1.50	77	15576											
	THB-42Z530	1½	679	1.50	87	15418	14186	12934	11059								
	THB-42Z545	2	564	2.00	80	17158											
	THB-42Z530	2	746	2.00	88	16939	15822	14683	13419								
	THB-42Z545	3	645	3.00	82	19622	17314										
	THB-42Z530	3	855	3.00	91	19414	18444	17445	16461	15296							
	THB-42Z545	5	765	5.00	87	23273	21652										
	THB-42Z530	5	1014	5.00	96	23025	22210	21379	20532	19706	18405	17659					
THB-42Z545	7½	875	7.50	90	26619	25291											
THB-42Z530	7½	1137	7.05	99	25818	25093	24356	23607	22853	21818	21346	20420	19190				
THB-42Z545	10	963	10.00	92	29296	28126	26460										

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Belt Driven

## THB – Fabricated Steel Propeller

SIZE	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)												
						0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500		
						CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM		
48	THB-48Z545	1½	438	1.50	76	18057												
	THB-48Z535	1½	521	1.50	82	18737	16728	13766										
	THB-48Z545	2	482	2.00	79	19871												
	THB-48Z535	2	573	2.00	86	20607	18816	16620										
	THB-48Z545	3	551	3.00	82	22716												
	THB-48Z535	3	656	3.00	89	23592	22061	20316	17962									
	THB-48Z545	5	653	5.00	87	26921	24059											
	THB-48Z535	5	802	5.47	95	28842	27616	26279	24821	23095								
	THB-48Z545	7½	748	7.50	90	30837	28565											
	THB-48Z535	7½	891	7.50	98	32043	30948	29776	28511	27159	25538							
	THB-48Z545	10	823	10.00	93	33929	31948	28208										
	THB-48Z535	10	981	10.01	99	35280	34291	33246	32136	30958	29705	28223	26167					
54	THB-54Z545	1½	330	1.50	71	21579												
	THB-54Z530	1½	435	1.50	82	21308	19014	15680										
	THB-54Z545	2	363	2.00	74	23737												
	THB-54Z530	2	478	2.00	85	23414	21367	18854										
	THB-54Z545	3	416	3.00	78	27203												
	THB-54Z530	3	547	3.00	88	26794	25042	23044	20369									
	THB-54Z545	5	493	5.00	82	32238	26825											
	THB-54Z530	5	649	5.00	92	31791	30341	28750	27004	24812								
	THB-54Z545	7½	564	7.50	87	36881	33239											
	THB-54Z530	7½	742	7.50	96	36346	35091	33748	32298	30745	28887	26112						
	THB-54Z545	10	621	10.00	90	40608	37525											
	THB-54Z530	10	817	10.00	98	40020	38887	37690	36417	35067	33625	31928	29609					
THB-54Z545	15	711	15.00	92	46493	43961	39493											
THB-54Z530	15	884	12.65	100	43302	42259	41166	40017	38802	37534	36174	34590	32531					
60	THB-60Z545	2	321	2.00	73	27050												
	THB-60Z530	2	426	2.00	83	27155	24186	20661										
	THB-60Z545	3	368	3.00	77	31011												
	THB-60Z530	3	488	3.00	87	31108	28549	25795	21970									
	THB-60Z545	5	436	5.00	82	36741												
	THB-60Z530	5	579	5.00	91	36908	34778	32524	30132	27003								
	THB-60Z545	7½	499	7.50	87	42050	37682											
	THB-60Z530	7½	663	7.50	95	42263	40415	38482	36487	34350	31698							
	THB-60Z545	10	549	10.00	89	46264	42608											
	THB-60Z530	10	729	10.00	98	46470	44796	43059	41259	39427	37414	34976						
	THB-60Z545	15	629	15.00	93	53005	50031											
	THB-60Z530	15	796	12.97	101	50741	49212	47636	46009	44349	42649	40774	38565	35775				
THB-60Z545	20	693	20.00	95	58398	55787	51952											
THB-60Z545	25	746	25.00	97	62865	60486	57324											

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings do not include the effects of appurtenances (accessories).
4. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
5. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
6. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Direct Drive

## THD – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)													
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500			
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM			
14	4	THD-14E416	1/4	1160	0.04	68	904													
		THD-14E420	1/4	1160	0.05	69	1008													
		THD-14E424	1/4	1160	0.07	69	1108													
		THD-14E428	1/4	1160	0.08	69	1172													
		THD-14E432	1/4	1160	0.09	69	1231													
	4	THD-14E416	1/4	1750	0.16	78	1363	1185												
		THD-14E420	1/4	1750	0.19	79	1521	1357												
		THD-14E424	1/4	1750	0.23	80	1671	1500												
		THD-14E428	1/4	1750	0.26	79	1768	1583												
		THD-14E816	1/4	1160	0.06	72	876													
	8	THD-14E820	1/4	1160	0.07	71	1015													
		THD-14E824	1/4	1160	0.08	74	1137													
		THD-14E828	1/4	1160	0.10	74	1217													
		THD-14E832	1/4	1160	0.12	72	1283													
THD-14E816		1/4	1750	0.20	82	1321	1176													
THD-14E820		1/4	1750	0.24	82	1531	1365													
THD-14E824		1/3	1750	0.30	85	1715	1562													
THD-14E828		1/3	1750	0.34	85	1836	1656													
THD-14E832		1/2	1750	0.40	85	1936	1692													
16	4	THD-16E416	1/4	1160	0.07	66	1306													
		THD-16E420	1/4	1160	0.08	69	1457	1071												
		THD-16E424	1/4	1160	0.10	67	1608													
		THD-16E428	1/4	1160	0.12	69	1719	1315												
		THD-16E432	1/4	1160	0.15	68	1814													
	4	THD-16E416	1/4	1750	0.24	81	1970	1765	1487											
		THD-16E420	1/3	1750	0.29	80	2198	2000	1734											
		THD-16E424	1/3	1750	0.36	81	2426	2221	1934											
		THD-16E428	1/2	1750	0.42	81	2594	2379	2096											
		THD-16E432	1/2	1750	0.50	81	2737	2508												
	8	THD-16E816	1/4	1160	0.09	68	1300													
		THD-16E820	1/4	1160	0.11	72	1503	1182												
		THD-16E824	1/4	1160	0.14	69	1696													
		THD-16E828	1/4	1160	0.17	71	1846													
THD-16E832		1/4	1160	0.20	71	1967														
THD-16E816		1/3	1750	0.31	85	1962	1801	1588												
THD-16E820		1/2	1750	0.39	84	2268	2090	1874												
THD-16E824	1/2	1750	0.48	84	2558	2385	2154													
THD-16E828	3/4	1750	0.58	84	2784	2595	2297													
THD-16E832	3/4	1750	0.69	84	2968	2727	2377													
18	4	THD-18E412	1/4	1160	0.07	74	1537	1122												
		THD-18E416	1/4	1160	0.10	73	1810	1393												
		THD-18E420	1/4	1160	0.12	71	2023	1617												
		THD-18E424	1/4	1160	0.15	72	2242	1828												
		THD-18E428	1/4	1160	0.18	71	2415	1989												
		THD-18E432	1/4	1160	0.22	71	2554	2153												
	4	THD-18E412	1/4	1750	0.25	83	2319	2081	1778	1426										
		THD-18E416	1/3	1750	0.33	84	2730	2501	2199	1802										
		THD-18E420	1/2	1750	0.41	83	3052	2811	2530	2125										
		THD-18E424	1/2	1750	0.51	82	3383	3139	2852											
		THD-18E428	3/4	1750	0.63	83	3644	3391	3094	2735										
		THD-18E432	3/4	1750	0.76	82	3854	3600	3326											
	8	THD-18E812	1/4	1160	0.10	75	1514	1206												
		THD-18E816	1/4	1160	0.13	75	1843	1546												
THD-18E820		1/4	1160	0.17	74	2130	1802													
THD-18E824		1/4	1160	0.21	73	2415	2088													
THD-18E828		1/4	1160	0.27	72	2660	2301													
THD-18E832		1/3	1160	0.33	74	2863														
THD-18E812		1/2	1750	0.37	85	2284	2083	1878	1664	1433										
THD-18E816		1/2	1750	0.46	87	2781	2601	2395	2133											
THD-18E820	3/4	1750	0.58	86	3213	3018	2790	2476												
THD-18E824	3/4	1750	0.73	86	3644	3444	3216	2939												
THD-18E828	1	1750	0.93	85	4013	3808	3557	3204												

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Performance ratings do not include the effects of appurtenances (accessories).
3. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
4. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
5. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Direct Drive

## THD – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)											
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500	
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	
21	4 BLADES	THD-21E412	1/4	1160	0.11	77	2149	1641										
		THD-21E416	1/4	1160	0.15	77	2591	2107										
		THD-21E420	1/4	1160	0.18	74	2941	2456										
		THD-21E424	1/4	1160	0.24	74	3299	2826										
		THD-21E428	1/3	1160	0.30	73	3602	3116										
		THD-21E432	1/2	1160	0.38	73	3830	3336										
	8 BLADES	THD-21E412	1/2	1750	0.36	88	3243	2934	2577	2185								
		THD-21E416	1/2	1750	0.50	87	3910	3630	3288	2856								
		THD-21E420	3/4	1750	0.63	86	4436	4151	3812	3391								
		THD-21E424	1	1750	0.83	84	4977	4695	4366	3944								
		THD-21E428	1	1750	1.04	85	5434	5137	4802	4408	3889							
		THD-21E432	1½	1750	1.29	85	5778	5465	5124	4772								
	24	4 BLADES	THD-24E812	1/4	1160	0.17	78	2146	1807	1404								
			THD-24E816	1/4	1160	0.21	79	2668	2343									
			THD-24E820	1/3	1160	0.28	78	3140	2791									
			THD-24E824	1/3	1160	0.36	77	3612	3275									
			THD-24E828	1/2	1160	0.47	77	4015	3640	3014								
			THD-24E832	3/4	1160	0.57	76	4384	3970									
8 BLADES		THD-24E812	3/4	1750	0.57	90	3238	3015	2788	2552	2284	1974						
		THD-24E816	3/4	1750	0.75	91	4025	3822	3599	3352	3039							
		THD-24E820	1	1750	0.96	90	4737	4521	4282	4010	3675							
		THD-24E824	1½	1750	1.24	89	5450	5245	5012	4736	4371							
24	4 BLADES	THD-24E412	1/4	860	0.05	72	2135											
		THD-24E416	1/4	860	0.07	73	2632	1736										
		THD-24E420	1/4	860	0.10	73	3027	2107										
		THD-24E424	1/4	860	0.14	69	3434	2552										
		THD-24E428	1/4	860	0.18	69	3789	2946										
		THD-24E432	1/4	860	0.24	69	4048											
	8 BLADES	THD-24E412	1/4	1160	0.13	80	2879	2260										
		THD-24E416	1/4	1160	0.19	81	3550	2984	2172									
		THD-24E420	1/4	1160	0.26	81	4083	3519	2636									
		THD-24E424	1/3	1160	0.35	76	4632	4096	3232									
		THD-24E428	1/2	1160	0.46	77	5111	4568	3785									
		THD-24E432	3/4	1160	0.58	76	5460	4870										
		THD-24E412	1/2	1750	0.45	91	4344	3937	3530	3073								
		THD-24E416	3/4	1750	0.65	92	5355	5014	4623	4159	3614							
24	4 BLADES	THD-24E420	1	1750	0.88	91	6160	5822	5432	4952	4381							
		THD-24E424	1½	1750	1.20	87	6988	6661	6291	5853	5291	4418						
		THD-24E428	1½	1750	1.57	86	7710	7374	7002	6586	6082							
		THD-24E432	2	1750	1.99	87	8237	7864	7463	7060								
		THD-24E812	1/4	860	0.09	76	2158	1634										
		THD-24E816	1/4	860	0.13	76	2736	2210										
	8 BLADES	THD-24E820	1/4	860	0.17	76	3274	2718										
		THD-24E824	1/4	860	0.23	74	3812	3271										
		THD-24E828	1/3	860	0.29	73	4269	3635										
		THD-24E832	1/2	860	0.37	71	4712	4038										
		THD-24E812	1/4	1160	0.23	83	2910	2537	2117									
		THD-24E816	1/3	1160	0.32	84	3690	3328	2890									
		THD-24E820	1/2	1160	0.41	85	4416	4041	3573	2902								
		THD-24E824	3/4	1160	0.56	82	5141	4800	4296									
24	8 BLADES	THD-24E828	3/4	1160	0.73	81	5758	5357	4771									
		THD-24E832	1	1160	0.92	79	6356	5921	5313									
		THD-24E812	3/4	1750	0.79	95	4391	4144	3895	3647	3368							
		THD-24E816	1	1750	1.09	94	5567	5337	5091	4829	4542	4189	3765					
		THD-24E820	1½	1750	1.45	96	6662	6425	6170	5891	5579	5229	4831					
		THD-24E824	2	1750	1.91	93	7756	7545	7311	7043	6711	6267						
24	8 BLADES	THD-24E828	3	1750	2.50	92	8687	8439	8164	7850	7461	6960						
		THD-24E832	3	1750	3.17	89	9588	9319	9021	8683	8282	7764	6916					

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Performance ratings do not include the effects of appurtenances (accessories).
3. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
4. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
5. Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Direct Drive

## THD – Die Cast Aluminum Propeller

SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwIA	STATIC PRESSURE (IN. W.G.)																	
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500							
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM							
30	4 BLADES	THD-30E412	1/4	860	0.26	80	4728	3905	2788															
		THD-30E416	1/3	860	0.36	81	5690	4954	3884															
		THD-30E420	1/2	860	0.47	80	6597	5860	4837															
		THD-30E424	3/4	860	0.61	78	7408	6622	5635															
		THD-30E428	3/4	860	0.77	77	8138	7260	6324															
		THD-30E432	1	860	0.93	80	8670	7843	6866															
		THD-30E412	3/4	1160	0.64	89	6378	5813	5138	4370														
		THD-30E416	1	1160	0.88	89	7675	7163	6566	5822	4879													
		THD-30E420	1½	1160	1.15	88	8898	8400	7770	6959	6237													
		THD-30E424	1½	1160	1.51	86	9992	9436	8812	8090	7307													
		THD-30E428	2	1160	1.89	85	10977	10337	9670	8973	8292													
		THD-30E432	3	1160	2.29	87	11694	11100	10460	9771	8949													
	THD-30E412	3	1750	2.21	101	9622	9263	8880	8467	8013	7537	7043	6492	5860										
	THD-30E416	3	1750	3.01	101	11578	11251	10906	10537	10140	9706	9228	8684	8080										
	THD-30E420	5	1750	3.97	99	13424	13110	12771	12402	11989	11478	10908	10420	9973										
	THD-30E424	5	1750	5.18	97	15074	14716	14342	13949	13535	13092	12617	12117	11611	10417									
	8 BLADES	THD-30E812	1/2	860	0.47	81	4924	4397	3807															
		THD-30E816	3/4	860	0.58	82	5855	5362	4771	3942														
		THD-30E820	3/4	860	0.71	83	6834	6269	5506	4502														
		THD-30E824	1	860	0.97	83	7972	7479	6841	5822														
		THD-30E828	1½	860	1.23	81	9087	8512	7844	7007														
		THD-30E832	1½	860	1.49	81	9810	9243	8503															
		THD-30E812	1½	1160	1.15	88	6641	6259	5856	5431	4960													
		THD-30E816	1½	1160	1.42	90	7897	7545	7161	6736	6249	5642												
THD-30E820		2	1160	1.74	91	9219	8820	8369	7831	7178	6401													
THD-30E824		3	1160	2.38	91	10753	10404	10014	9565	9011	8293	7136												
THD-30E828		3	1160	3.02	88	12257	11843	11399	10915	10379	9764	9039												
THD-30E832		5	1160	3.65	89	13232	12831	12381	11858	11218														
THD-30E812	5	1750	3.96	100	10019	9769	9513	9252	8985	8712	8432	8142	7836	7173										
THD-30E816	5	1750	4.89	101	11914	11685	11449	11203	10948	10682	10403	10111	9800	9092	8227									
36	4 BLADES	THD-36E412	1/2	860	0.39	84	6495	5320	3911															
		THD-36E416	1/2	860	0.53	84	8129	7071	5520	3678														
		THD-36E420	3/4	860	0.73	86	9834	8685	7237	5426														
		THD-36E424	1	860	1.00	80	11181	10095	8653															
		THD-36E428	1½	860	1.30	80	12455	11422	9988															
		THD-36E432	1½	860	1.62	80	13468	12355	10976															
		THD-36E412	1	1160	0.97	91	8760	7964	6995	5993	4830													
		THD-36E416	1½	1160	1.31	92	10964	10252	9350	8213	7022	5682												
		THD-36E420	2	1160	1.81	95	13265	12442	11547	10543	9285	7914	6391											
		THD-36E424	3	1160	2.45	92	15081	14316	13450	12422	11202	9621												
		THD-36E428	3	1160	3.19	88	16800	16075	15247	14251	12944													
		THD-36E432	5	1160	3.97	87	18166	17373	16499	15517	14360													
	THD-36E412	5	1750	3.33	104	13216	12712	12171	11579	10920	10262	9611	8918	8175	6515									
	THD-36E416	5	1750	4.50	105	16541	16091	15607	15078	14481	13782	13039	12251	11451	9867	7928								
	THD-36E420	3/4	1750	6.22	108	20011	19478	18926	18353	17758	17141	16489	15777	14968	13202	11420								
	THD-36E424	10	1750	8.39	102	22752	22260	21744	21201	20625	20008	19337	18612	17837	16055									
	THD-36E428	10	1750	10.96	100	25345	24880	24390	23873	23323	22732	22086	21371	20569	18477									
	8 BLADES	THD-36E812	3/4	860	0.70	87	6478	5748	4980	4105														
		THD-36E816	1	860	0.90	86	8388	7695	6872	5912	4813													
		THD-36E820	1½	860	1.19	89	10342	9640	8818	7761	6452													
		THD-36E824	1½	860	1.58	89	12229	11446	10581	9505														
		THD-36E828	2	860	1.99	85	13966	13183	12176	10730														
		THD-36E832	3	860	2.55	84	15393	14531	13469	11940														
		THD-36E812	2	1160	1.71	84	8738	8200	7655	7101	6488	5840	5177	4511	3844									
THD-36E816		3	1160	2.22	84	11315	10817	10279	9683	9027	8317	7563	6754											
THD-36E820		3	1160	2.94	97	13949	13445	12901	12307	11645	10880	9946	8982											
THD-36E824		5	1160	3.87	96	16495	15928	15328	14691	14028	13268													
THD-36E828		5	1160	4.89	92	18837	18282	17665	16960	16074	14989													
THD-36E832		7½	1160	6.28	90	20763	20148	19473	18715	17827	16731													
THD-36E812	7½	1750	5.87	107	13183	12828	12470	12110	11748	11387	11023	10647	10250	9404	8539									
THD-36E816	7½	1750	7.60	108	17070	16746	16413	16068	15710	15338	14948	14536	14106	13208	12241									
THD-36E820	10	1750	10.08	108	21044	20716	20378	20029	19668	19294	18903	18496	18068	17138	16051									

**NOTES:**

- Performance certified is for installation Type A: Free inlet, free outlet.
- Performance ratings do not include the effects of appurtenances (accessories).
- The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
- Values shown are for inlet LwIA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
- Sound power values shown are at the peak cataloged pressure for each RPM.

# Performance Data – Direct Drive

## THD – Die Cast Aluminum Propeller

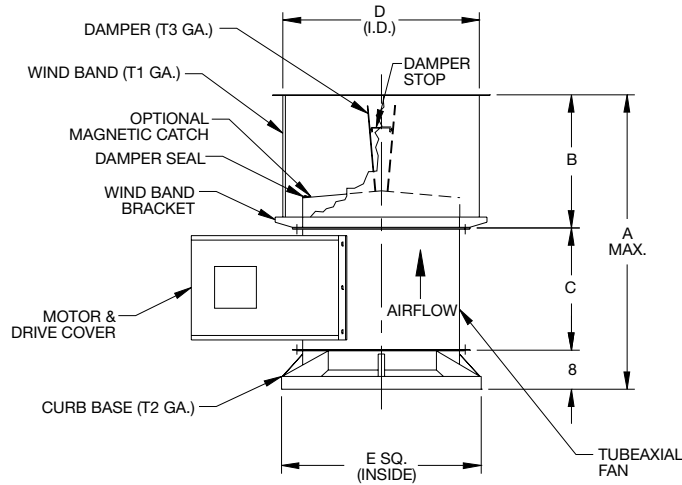
SIZE	NO. OF BLADES	PROP	MOTOR HP	FAN RPM	MAX. BHP	LwiA	STATIC PRESSURE (IN. W.G.)											
							0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500	
							CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM	
42	4 BLADES	THD-42E412	1½	860	1.25	91	12229	11115	9786	8288								
		THD-42E416	2	860	1.70	91	14840	13836	12642	11146	9325							
		THD-42E420	3	860	2.26	90	17407	16387	15128	13583	12067							
		THD-42E424	3	860	2.97	88	19598	18509	17284	15855	14253							
		THD-42E428	5	860	3.76	87	21597	20405	19119	17709	16254							
		THD-42E432	5	860	4.59	88	23097	21943	20687	19320	17688							
	4 BLADES	THD-42E412	3	1160	3.06	98	16495	15697	14830	13861	12823	11730	10473	9030				
		THD-42E416	5	1160	4.18	99	20017	19296	18516	17658	16687	15594	14332	12976				
		THD-42E420	7½	1160	5.55	99	23480	22750	21953	21066	19990	18813	17762	16653	15000			
		THD-42E424	7½	1160	7.31	96	26434	25646	24811	23920	22954	21897	20769	19586	18092			
		THD-42E428	10	1160	9.24	94	29131	28261	27357	26414	25424	24381	23291	22223	21075			
		THD-42E432	10	1160	11.27	96	31154	30313	29435	28516	27551	26545	25453	24217	22802			
	8 BLADES	THD-42E812	3	860	2.23	91	12605	11851	11066	10244	9332	8220						
		THD-42E816	3	860	2.78	92	15289	14595	13840	13005	12052	10899						
		THD-42E820	5	860	3.46	94	18090	17324	16469	15473	14287	12832						
		THD-42E824	5	860	4.70	94	21171	20461	19677	18789	17735	16383						
		THD-42E828	7½	860	5.97	91	24143	23340	22467	21502	20398	19118	17611					
		THD-42E832	7½	860	7.30	90	26199	25394	24493	23451	22183							
		THD-42E812	5	1160	5.47	99	17002	16448	15881	15301	14712	14106	13465	12785	12047			
		THD-42E816	7½	1160	6.81	100	20622	20117	19589	19036	18453	17837	17179	16467	15674	13824		
8 BLADES	THD-42E820	10	1160	8.48	102	24401	23846	23259	22636	21967	21233	20421	19533	18526				
	THD-42E824	10	1160	10.93	99	28556	28040	27499										
48	4 BLADES	THD-48E412	2	860	1.67	92	15395	13959	12212	10399	8278							
		THD-48E416	3	860	2.24	93	19268	17983	16343	14283	12144	9666						
		THD-48E420	3	860	3.11	95	23310	21829	20215	18389	16100	13645	10740					
		THD-48E424	5	860	4.21	94	26503	25125	23559	21691	19461	16513						
		THD-48E428	5	860	5.47	89	29524	28217	26721	24905	22475							
		THD-48E432	7½	860	6.81	89	31923	30496	28919	27139	25027							
	4 BLADES	THD-48E412	5	1160	4.09	100	20765	19741	18616	17325	16002	14676	13225	11639	9900			
		THD-48E416	7½	1160	5.31	101	25990	25076	24066	22913	21514	20001	18387	16819	15173	11125		
		THD-48E420	7½	1160	7.56	103	31442	30364	29237	28052	26811	25474	23938	22204	20390	16731		
		THD-48E424	10	1160	10.29	98	35748	34752	33692	32555	31314	29935	28423	26752	24842			
	8 BLADES	THD-48E812	3	860	2.94	95	15356	14388	13408	12408	11296	10128	8932					
		THD-48E816	5	860	3.82	95	19884	18988	18017	16938	15751	14463	13099	11603				
		THD-48E820	5	860	5.05	98	24513	23606	22625	21551	20348	18943	17241	15496				
		THD-48E824	7½	860	6.65	97	28988	27967	26886	25738	24537	23134						
		THD-48E828	10	860	8.39	93	33103	32103	30989	29709	28079	26114						
		THD-48E832	10	860	10.78	92	36487	35380	34161	32787	31165	29144						
		THD-48E812	7½	1160	7.20	102	20713	19998	19277	18549	17823	17086	16308	15474	14613	12863	11066	
		THD-48E816	10	1160	9.37	103	26820	26167	25487	24775	24027	23230	22382	21497	20574	18604	16512	

**NOTES:**

1. Performance certified is for installation Type A: Free inlet, free outlet.
2. Performance ratings do not include the effects of appurtenances (accessories).
3. The sound power ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301.
4. Values shown are for inlet LwiA sound power levels for installation Type A: Free inlet, free outlet. Ratings do not include the effects of end correction.
5. Sound power values shown are at the peak cataloged pressure for each RPM.

# Dimensional Data – Upblast

## Belt Driven – TUB/TUBSH

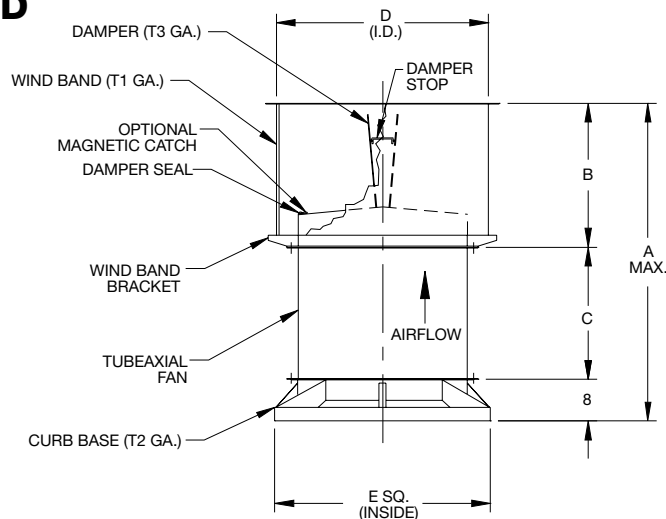


SIZE	A MAX.	B	C	D	E	T1	T2	T3	SHAFT SIZE	MAX. FRAME
14	47 <sup>3</sup> / <sub>4</sub>	20 <sup>3</sup> / <sub>4</sub>	19	20 <sup>3</sup> / <sub>8</sub>	23 <sup>7</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	3/4	56
16	47 <sup>3</sup> / <sub>4</sub>	20 <sup>3</sup> / <sub>4</sub>	19	22 <sup>3</sup> / <sub>8</sub>	23 <sup>7</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	3/4	143T
18	48 <sup>3</sup> / <sub>4</sub>	21 <sup>3</sup> / <sub>4</sub>	19	25 <sup>3</sup> / <sub>8</sub>	27 <sup>7</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	3/4	145T
21	52 <sup>3</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>4</sub>	21	26 <sup>7</sup> / <sub>8</sub>	31 <sup>3</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	3/4	145T
24	53 <sup>3</sup> / <sub>4</sub>	24 <sup>3</sup> / <sub>4</sub>	21	28 <sup>3</sup> / <sub>8</sub>	35 <sup>3</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	1	184T
30	61 <sup>3</sup> / <sub>4</sub>	27 <sup>3</sup> / <sub>4</sub>	26	36 <sup>7</sup> / <sub>8</sub>	42 <sup>3</sup> / <sub>8</sub>	18 GA.	16 GA.	.040 GA.	1	213T
36	65 <sup>3</sup> / <sub>4</sub>	30 <sup>3</sup> / <sub>4</sub>	27	42 <sup>7</sup> / <sub>8</sub>	48 <sup>3</sup> / <sub>8</sub>	18 GA.	16 GA.	.040 GA.	1 <sup>3</sup> / <sub>16</sub>	215T
42	72 <sup>3</sup> / <sub>4</sub>	33 <sup>3</sup> / <sub>4</sub>	31	48 <sup>3</sup> / <sub>8</sub>	54 <sup>3</sup> / <sub>8</sub>	18 GA.	16 GA.	.063 GA.	1 <sup>7</sup> / <sub>16</sub>	215T
48	79 <sup>3</sup> / <sub>4</sub>	36 <sup>3</sup> / <sub>4</sub>	35	54 <sup>7</sup> / <sub>8</sub>	60 <sup>3</sup> / <sub>8</sub>	18 GA.	14 GA.	.063 GA.	1 <sup>7</sup> / <sub>16</sub>	254T
54	87 <sup>3</sup> / <sub>4</sub>	39 <sup>3</sup> / <sub>4</sub>	40	60 <sup>3</sup> / <sub>4</sub>	74 <sup>3</sup> / <sub>8</sub>	18 GA.	14 GA.	.063 GA.	1 <sup>7</sup> / <sub>16</sub>	256T
60	91 <sup>3</sup> / <sub>4</sub>	43 <sup>3</sup> / <sub>4</sub>	40	66 <sup>3</sup> / <sub>4</sub>	74 <sup>3</sup> / <sub>8</sub>	18 GA.	14 GA.	.063 GA.	1 <sup>1</sup> / <sub>16</sub>	284T

Dimensions are not to be used for construction.

D-4850-1B

## Direct Drive – TUD



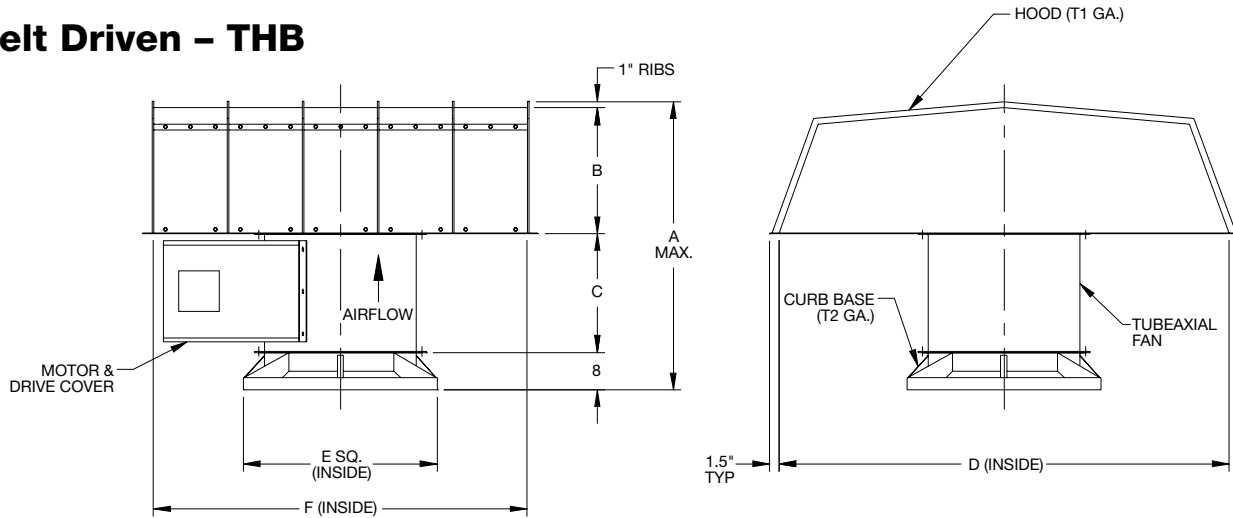
SIZE	A MAX.	B	C	D	E	T1	T2	T3	MAX. HP	MAX. FRAME
14	47 <sup>3</sup> / <sub>4</sub>	20 <sup>3</sup> / <sub>4</sub>	19	20 <sup>3</sup> / <sub>8</sub>	23 <sup>7</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	3/4	56
16	47 <sup>3</sup> / <sub>4</sub>	20 <sup>3</sup> / <sub>4</sub>	19	22 <sup>3</sup> / <sub>8</sub>	23 <sup>7</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	1	143T
18	48 <sup>3</sup> / <sub>4</sub>	21 <sup>3</sup> / <sub>4</sub>	19	25 <sup>3</sup> / <sub>8</sub>	27 <sup>7</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	1	145T
21	52 <sup>3</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>4</sub>	21	26 <sup>7</sup> / <sub>8</sub>	31 <sup>3</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	1 <sup>1</sup> / <sub>2</sub>	145T
24	53 <sup>3</sup> / <sub>4</sub>	24 <sup>3</sup> / <sub>4</sub>	21	28 <sup>3</sup> / <sub>8</sub>	35 <sup>3</sup> / <sub>8</sub>	20 GA.	16 GA.	.032 GA.	3	184T
30	61 <sup>3</sup> / <sub>4</sub>	27 <sup>3</sup> / <sub>4</sub>	26	36 <sup>7</sup> / <sub>8</sub>	42 <sup>3</sup> / <sub>8</sub>	18 GA.	16 GA.	.040 GA.	5	184T
36	65 <sup>3</sup> / <sub>4</sub>	30 <sup>3</sup> / <sub>4</sub>	27	42 <sup>7</sup> / <sub>8</sub>	48 <sup>3</sup> / <sub>8</sub>	18 GA.	16 GA.	.040 GA.	10	215T
42	72 <sup>3</sup> / <sub>4</sub>	33 <sup>3</sup> / <sub>4</sub>	31	48 <sup>3</sup> / <sub>8</sub>	54 <sup>3</sup> / <sub>8</sub>	18 GA.	16 GA.	.063 GA.	10	256T
48	79 <sup>3</sup> / <sub>4</sub>	36 <sup>3</sup> / <sub>4</sub>	35	54 <sup>7</sup> / <sub>8</sub>	60 <sup>3</sup> / <sub>8</sub>	18 GA.	14 GA.	.063 GA.	10	256T

Dimensions are not to be used for construction.

D-4850-2B

# Dimensional Data – Hooded

## Belt Driven – THB

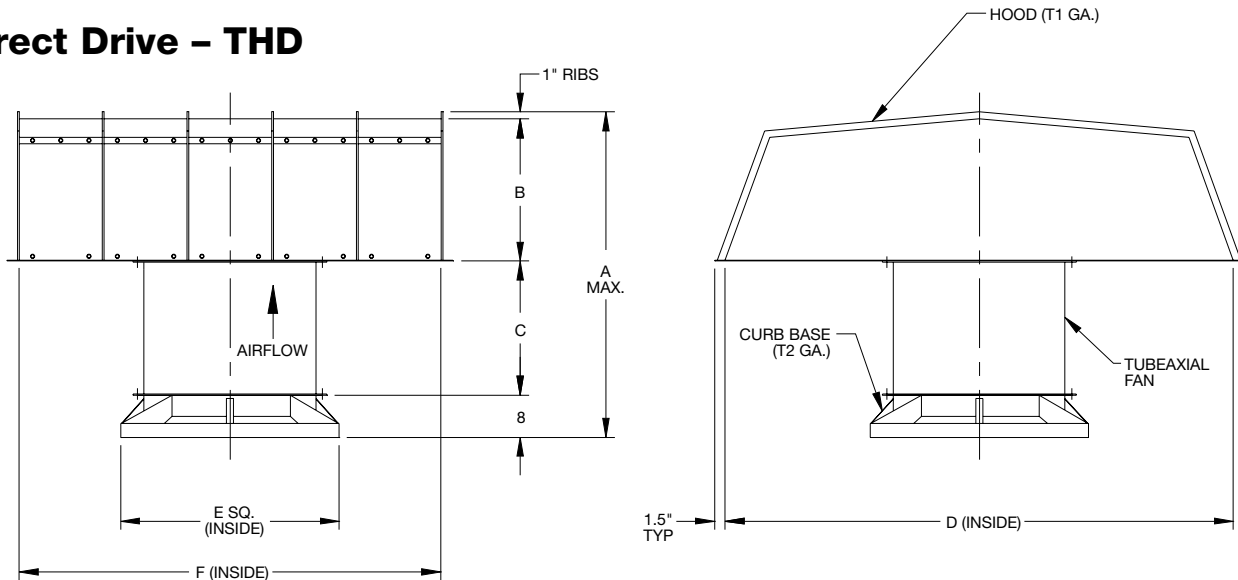


SIZE	A MAX.	B	C	D	E	F	T1	T2	SHAFT SIZE	MAX. FRAME
14	42	15	19	40	23 <sup>7</sup> / <sub>8</sub>	40	20 GA.	16 GA.	3/4	56
16	42	15	19	40	23 <sup>7</sup> / <sub>8</sub>	40	20 GA.	16 GA.	3/4	143T
18	42	15	19	45	27 <sup>7</sup> / <sub>8</sub>	45	20 GA.	16 GA.	3/4	145T
21	44	15	21	49	31 <sup>3</sup> / <sub>8</sub>	49	20 GA.	16 GA.	3/4	145T
24	44	15	21	62	35 <sup>3</sup> / <sub>8</sub>	62	20 GA.	16 GA.	1	184T
30	52	18	26	68	42 <sup>3</sup> / <sub>8</sub>	68	20 GA.	16 GA.	1	213T
36	55	20	27	75	48 <sup>3</sup> / <sub>8</sub>	75	18 GA.	16 GA.	1 <sup>3</sup> / <sub>16</sub>	215T
42	61	22	31	89	54 <sup>3</sup> / <sub>8</sub>	89	18 GA.	16 GA.	1 <sup>7</sup> / <sub>16</sub>	215T
48	67	24	35	105	60 <sup>3</sup> / <sub>8</sub>	96	18 GA.	14 GA.	1 <sup>7</sup> / <sub>16</sub>	254T
54	72	24	40	112	74 <sup>3</sup> / <sub>8</sub>	117	18 GA.	14 GA.	1 <sup>7</sup> / <sub>16</sub>	256T
60	74	26	40	139	74 <sup>3</sup> / <sub>8</sub>	115	18 GA.	14 GA.	1 <sup>11</sup> / <sub>16</sub>	284T

Dimensions are not to be used for construction.

D-4850-3E

## Direct Drive – THD



SIZE	A MAX.	B	C	D	E	F	T1	T2	MAX HP	MAX. FRAME
14	42	15	19	40	23 <sup>7</sup> / <sub>8</sub>	40	20 GA.	16 GA.	3/4	56
16	42	15	19	40	23 <sup>7</sup> / <sub>8</sub>	40	20 GA.	16 GA.	1	143T
18	42	15	19	45	27 <sup>7</sup> / <sub>8</sub>	45	20 GA.	16 GA.	1	145T
21	44	15	21	49	31 <sup>3</sup> / <sub>8</sub>	49	20 GA.	16 GA.	1 <sup>1</sup> / <sub>2</sub>	145T
24	44	15	21	62	35 <sup>3</sup> / <sub>8</sub>	62	20 GA.	16 GA.	3	184T
30	52	18	26	68	42 <sup>3</sup> / <sub>8</sub>	68	20 GA.	16 GA.	5	184T
36	55	20	27	75	48 <sup>3</sup> / <sub>8</sub>	75	18 GA.	16 GA.	10	215T
42	61	22	31	89	54 <sup>3</sup> / <sub>8</sub>	89	18 GA.	16 GA.	10	256T
48	67	24	35	105	60 <sup>3</sup> / <sub>8</sub>	96	18 GA.	14 GA.	10	256T

Dimensions are not to be used for construction.

D-4850-4D

# Typical Specifications – Upblast (TUD, TUB, TUBSH)

Upblast Tubeaxial Roof Ventilators, shall be model TUD direct drive, model TUB belt driven, or Smoke & Heat Removal model TUBSH belt driven as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Fans shall be tested in accordance with AMCA 211 and AMCA 311 test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air. Fans shall be cULus 705 listed for electrical. Model TUBSH shall be UL listed for Smoke Control Systems (500°F for 4 hours and 1000°F for 15 minutes).

**CONSTRUCTION** — Housings, curb caps, and wind bands shall be constructed of heavy gauge, continuously welded steel to prevent air leakage. Motor and bearing supports shall be constructed of heavy-gauge steel and shall be suitably braced to prevent vibration or pulsation. Butterfly dampers shall contain a splash guard over the pivot area to protect against rain entry. Butterfly damper blades shall be aluminum (sizes 14-36) and galvanized steel (sizes 42-60) on models TUD and TUB. Butterfly dampers on model TUBSH shall be galvanized steel as standard. Model TUBSH shall be capable operating continuously at 200°F to 500°F.

**PROPELLERS** — Propellers on model TUD shall be constructed of or cast aluminum blades and hubs. Propellers on model TUB shall be constructed of fabricated steel or cast aluminum blades and hubs. Propellers on model TUBSH shall be fabricated steel blades and hubs. Propellers shall be secured to the fan shaft with a taperlock bushing.

**SHAFTS (TUB and TUBSH Only)** — 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 (TUB and TUBSH Only)** — 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 (TUB and TUBSH Only)** — Motor sheaves shall be cast iron, and supplied as either variable pitch or fixed pitch. Motor sheaves on model TUBSH shall be fixed pitch as standard (variable pitch optional). Drives and belts on model TUB shall be rated for a minimum of 150% of the required motor HP. Drives and belts on model TUBSH 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. Direct drive motors shall be split phase and capacitor start.

**FINISH AND COATING** — The entire fan assembly, excluding the shaft, shall be thoroughly degreased and deburred before application of a rust-preventative primer. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminum components shall be unpainted.

**ACCESSORIES** — When specified, accessories such as fusible link assembly, magnetic damper latches, access door, shaft seal, spark resistant construction, roof curb and disconnect switch 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 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 at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.

# Typical Specifications – Hooded (THD, THB)

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Hooded Tubeaxial Roof Ventilators, shall be Type THD direct drive or Type THB belt driven as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**PERFORMANCE** — Fans shall be tested in accordance with AMCA 211 and AMCA 311 test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels. Fans shall be cULus 705 listed for electrical.

**CONSTRUCTION** — Housings shall be constructed of heavy gauge, continuously welded steel to prevent air leakage. Motor and bearing supports shall be constructed of heavy-gauge steel and shall be suitably braced to prevent vibration or pulsation. Hoods shall be constructed of heavy gauge galvanized steel.

**PROPELLERS** — Propellers shall be constructed of fabricated steel or cast aluminum blades and hubs. Propellers shall be secured to the fan shaft with a taperlock bushing.

**SHAFTS (THB Only)** — 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 (THB Only)** — 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 (THB Only)** — 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. Direct drive motors shall be split phase and capacitor start.

**FINISH AND COATING** — The entire fan assembly, excluding the shaft and hood, shall be thoroughly degreased and deburred before application of a rust-preventative primer. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly. Aluminum components shall be unpainted. Hoods shall be galvanized steel. The fan shaft on model THB shall be coated with a petroleum-based rust protectant.

**ACCESSORIES** — When specified, accessories such access door, shaft seal, backdraft and motorized dampers, spark resistant construction (THB Only), curb extension, roof curb and disconnect switch 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 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 at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.

# Unlimited Options...

## Commercial Fans

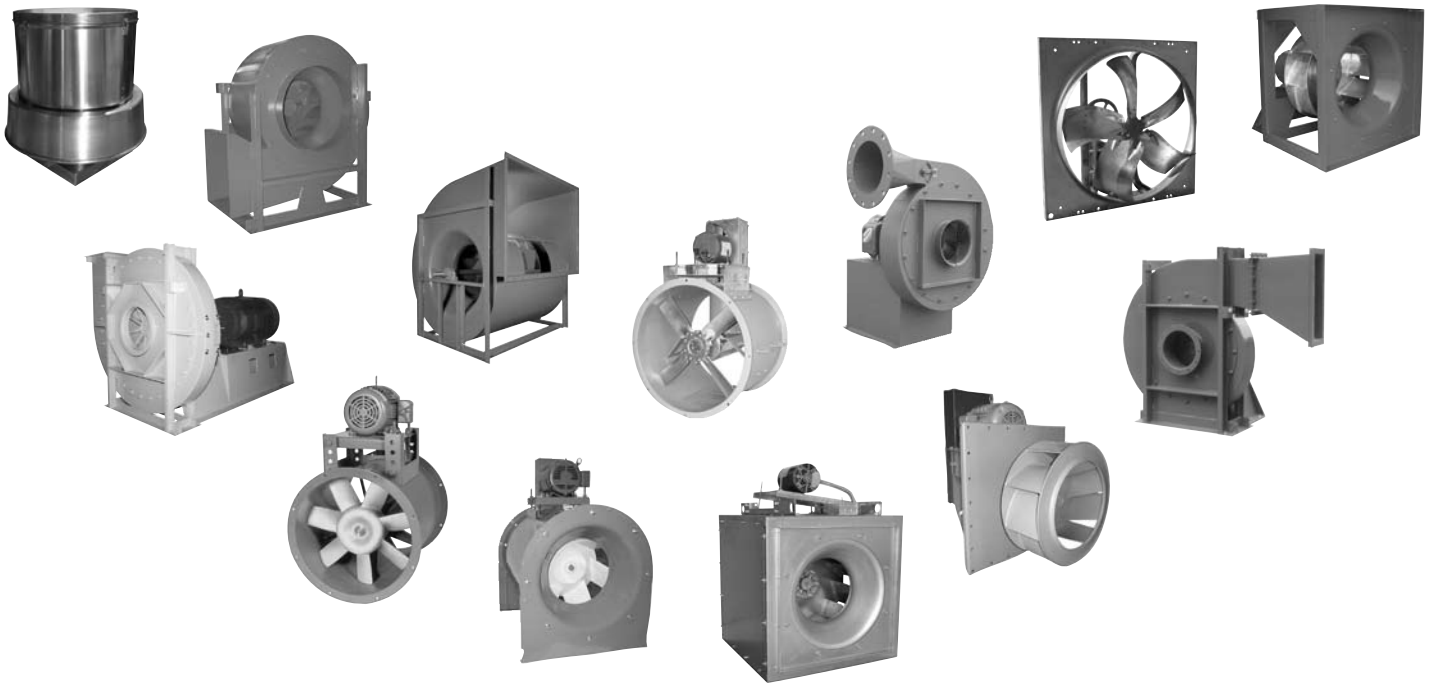
Centrifugal Fans • Utility Sets • Inline Centrifugal Fans • Plenum Fans  
Radial Bladed Fans • Centrifugal Roof & Wall Exhausters • Filtered Supply Fans  
Gravity Relief Ventilators • Ceiling & Cabinet Ventilators • Propeller Wall Fans  
Tubeaxial Fans • Vaneaxial Fans • Propeller Roof Ventilators  
Fume Hood/Smoke & Heat Exhaust Fans • Mancoolers • Fiberglass Fans

## Industrial Fans

Centrifugal Fans • Forward Curved & Air Kit Components • Inline Centrifugal Fans  
Plug Fans • Radial Bladed Fans • Radial Tip & High Efficiency Fans  
Pressure Blowers • Tubeaxial Fans • Vaneaxial Fans

## Custom Design Fans

Easy Access Fans • Insulated Fans • Inlet Boxes - Integral and Detached  
Inlet Box Dampers • Independent Bearing Pedestals • Split Housings • Bolted Housings  
Spark Resistant Construction • Ultra Fine Balancing • Modified Widths and Diameters  
Variable Frequency Drives • API Specifications • Special Materials • Anti-Rotation Devices  
Sleeve Oil Bearings • Volume Control Dampers • Inlet Vane Control with External Mechanisms



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