Backwardly Inclined Blowers

Bulletin AS0953

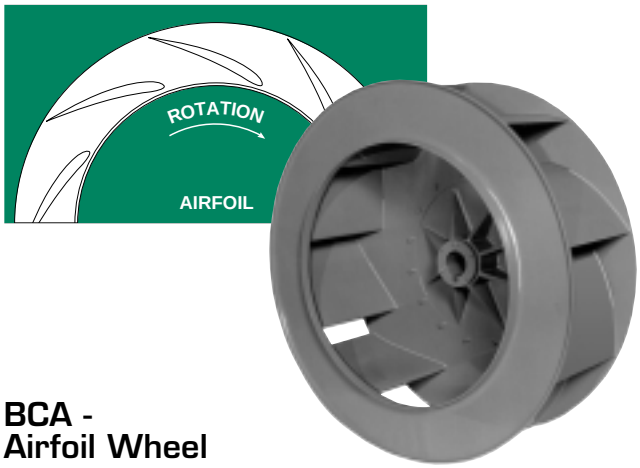
January 2009

SINGLE WIDTH
SINGLE INLET
12 1/4" THROUGH
66" DIAMETER

A Fläkt Woods Company

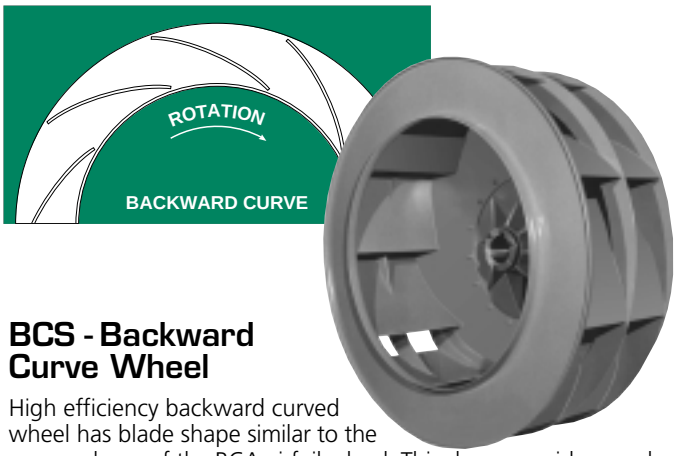
American Fan Company

WHEELS



BCA - Airfoil Wheel

High efficiency backwardly inclined airfoil bladed wheel designed for clean, dry air applications. BCA wheels exhibit non-overloading horsepower characteristics and stable performance over the entire pressure curve. Noise levels are lowest in the peak efficiency range of the performance curve. Class 3 wheels utilize internal blade stiffeners for higher tip speed capability.



BCS - Backward Curve Wheel

High efficiency backward curved wheel has blade shape similar to the convex shape of the BCA airfoil wheel. This shape provides nearly identical performance characteristics at a given speed at a slightly lower efficiency. BCS wheels also exhibit the same non-overloading horsepower characteristics and stable performance over the entire pressure curve. BCS wheels should be specified in moist or lightly contaminated air systems. Noise levels are lowest in the peak efficiency range of the performance curve. Class 3 wheels utilize a circumferential blade stiffener for higher tip speed capability.

BEARINGS

200 Series normal duty ball bearings used on class 1 and 2 on sizes 122 through 445. Eccentric cam locking collars hold the bearings securely to the shaft and further tightens with bearing rotation. Bearings are grease relubricable with steel-clad lip seals. Sizes 2-7/16" diameter and larger feature spring locking collars.

300 Series heavy duty ball bearings used on class 3 on sizes 122 through 330. The spring locking collar design provides a secure grip of the wide inner ring bearing to the shaft. Bearings are grease relubricable with felt contact seals.

22400 Series heavy duty double row spherical roller bearings used on class 1 and 2 on sizes 490 through 660 and on class 3 on sizes 365 through 660. The spring locking collar design provides a secure grip of the wide inner ring bearing to the shaft. Bearings are grease relubricable with floating labyrinth seals which feature multiple self-centering rings held securely in a steel carrier.

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RATINGS

American Fan Company certifies that the models BCA, BCS, QBCA, and QBCS shown herein are 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.

FEATURES

Sizes 122 thru 200

Sizes 222 thru 330

Sizes 365 thru 660

- Choice of two wheel types: Backward Curve (BCS) 12 ¼" diameter through 66" diameter, or Airfoil (BCA) 18 ¼" diameter through 66" diameter.
- Drilled outlet flange and slip collar inlet-standard.
- Pressures to 17" SP wg, Volumes to 100,000 CFM.
- Arrangement 1 bases prepunched for motor slide bases.
- Fork lift slots and lifting eyes in base for ease of handling and installation up through size 330.
- Available in standard or "Q" design
- Heavy gage continuously welded housings, reversible and rotatable through size 330, fixed on sizes 365 and up.
- Heavy duty anti-friction, self-aligning ball or roller bearings with positive shaft locking.
- Close tolerance 1141 turned, ground, and polished shafting.
- Two-plane dynamically balanced wheels.

ACCESSORIES

DRIVE GUARD

Standard guard is a totally enclosed design, as required by OSHA, for industrial applications.

OUTLET DAMPER

Heavy-duty damper bolts onto blower outlet flange for controlled air flow. Parallel or opposed blade designs are furnished. Either manual or motorized operator is available.

ARRT. 1 UNITARY

American Fan Co. offers unitary bases constructed of heavy channel iron for high horse power or high temperature applications where ARRT. 9 is impractical. The unitary base design is a complete packaged unit simplifying handling and installation while providing a more uniform weight distribution necessary when vibration isolators are used. Unitary bases also allow excellent access for routine maintenance.

ACCESS DOOR

Heavy-duty bolt-on type provided as the standard design. Quick release and other types including extended access for high temperature insulated housing applications are available.

ADDITIONAL AVAILABLE ACCESSORIES

- Housing drain
- Inlet screen
- Outlet screen
- High-temperature construction up to 1000° F.
- Stuffing box
- Mechanical shaft seal
- Spark resistant construction
- Stainless steel, aluminum, or other alloy airstream
- Radial inlet vane damper
- Flexible coupling for arr't 8
- Special coatings
- Flanged inlet
- Slip connection discharge
- Flexible connectors
- Companion flanges
- Weather cover
- Vibration isolators
- Shaft seal

TYPICAL APPLICATIONS

- Air pollution control systems
- Dryers and ovens
- HVAC
- Forced draft
- Boiler windbox
- Make-up air
- Fume control
- Air curtains
- Electronics cooling

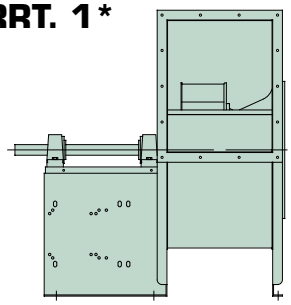
MAJOR INDUSTRIES

- Energy
- Pulp and Paper
- Commercial building
- Automotive
- Textile
- Petrochemical
- Steel

ARRANGEMENTS

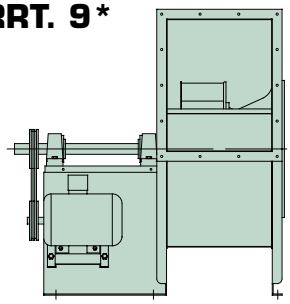
***Also available in "Q" design. See pages 82-91.**

ARRT. 1*



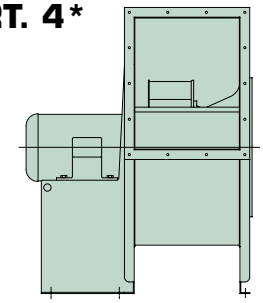
The fan wheel is overhung with both bearings mounted on a common pedestal. ARRT. 1 is suitable for high temperature and/or corrosive environment. Fan can be belt driven or directly coupled to drive motor mounted on a separate base.

ARRT. 9*



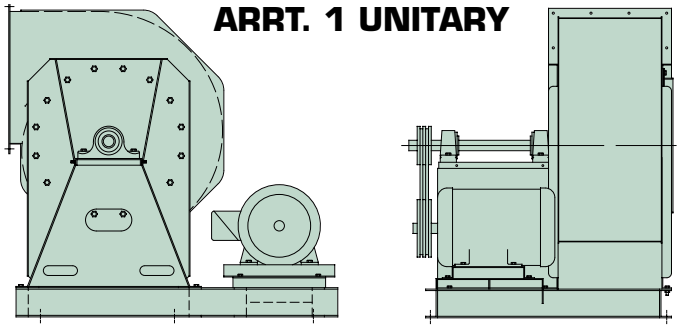
The fan wheel is overhung with both bearings mounted on a common pedestal. Fan is belt driven with drive motor mounted on bearing pedestal for a more compact unit suitable for high temperature and/or corrosive environment.

ARRT. 4*



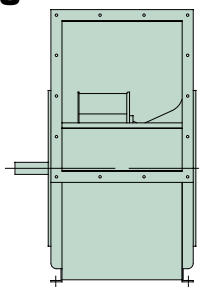
Direct drive fan with wheel mounted directly on motor shaft. Unit is designed for standard temperature applications only. With no belt loss, the direct drive fan operates at a higher efficiency.

ARRT. 1 UNITARY



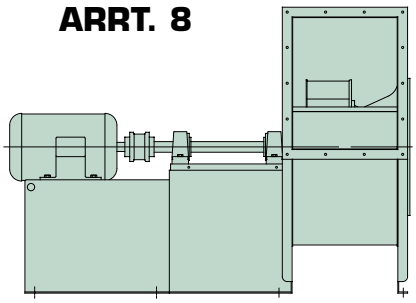
Arrangement 1 fan is mounted on a common channel iron base with motor and slide base. Commonly used when motor frame size exceeds arrangement 9 limitations and for high temperature applications. Also ideal for use with vibration isolators.

ARRT. 3*



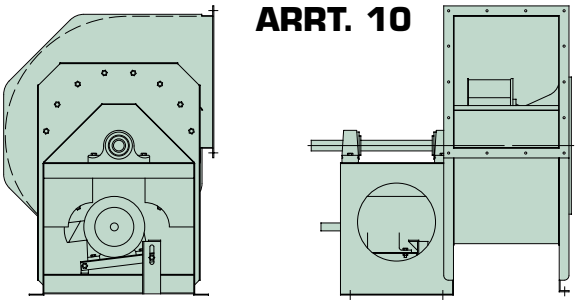
Belt drive or direct drive through coupling. Wheel is center hung with one bearing on each side supported by fan housing. Performance is slightly derated due to bearing in airstream. Designed for clean, dry, normal temperature applications only.

ARRT. 8



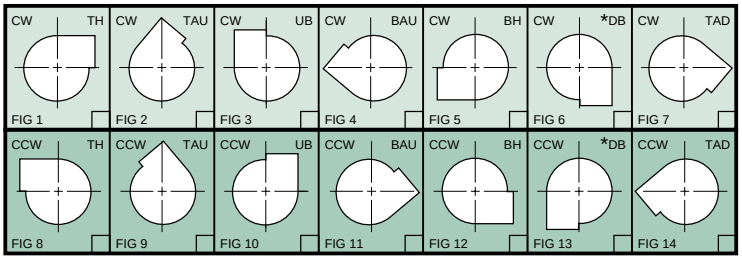
Direct drive fan through shaft and bearings. Efficiency of ARRT. 4 is maintained. However, ARRT. 8 may be used for high temperature and/or corrosive applications which require the motor shaft to be outside of airstream.

ARRT. 10



The fan wheel is overhung with both bearings mounted on a common pedestal. Fan is belt driven with drive motor mounted inside the bearing pedestal. Unit is compact and is commonly provided with an optional weather cover which encloses the shaft, bearings, drives and motor.

DISCHARGE POSITIONS



*Downblast discharge on sizes 122 through 330 can either be suppled without outlet flange or with flange and discharge extended to 2" below mounting surface of base. There is an additional charge for extending discharge. Sizes 365 through 660 are supplied with integral flush outlet flange.

NOTE: ROTATION VIEWED FROM DRIVEN SIDE

CONSTRUCTION MATERIALS

FAN SIZE	CHANNEL SIDE	CHANNEL TOP	MBFP/ INL. PLT	INLET VENTURI	WHEEL SPINNING	CLASS 1 & 2							CLASS 3								
						HSG. SIDE	HSG. SCROLL	BCS BLADE	BCA BLADE	WHL. BKPLT.	SHAFT DIA.	BEARINGS	HSG. SIDE	HSG. SCROLL	BCS BLADE	BCS BLADE REIN.	BCA BLADE	BCA BLADE REIN.	WHL. BKPLT.	SHAFT DIA.	BEARINGS
122	12	12	12	14	14	12	14	14	–	12	1 3/16	P3-Y219N	10	12	12	14	–	–	10	1 7/16	P-323
135	12	12	12	14	14	12	14	14	–	12	1 3/16	P3-Y219N	10	12	12	14	–	–	10	1 7/16	P-323
150	12	12	12	14	14	12	14	14	–	12	1 3/16	P3-Y219N	10	12	12	14	–	–	10	1 7/16	P-323
165	10	10	10	14	12	12	12	14	–	12	1 7/16	P3-Y223N	10	10	12	12	–	–	10	1 11/16	P-327
182	10	10	10	12	12	12	12	12	18	12	1 7/16	P3-Y223N	10	10	10	12	18	16	10	1 11/16	P-327
200	10	10	10	12	12	12	12	12	18	12	1 7/16	P3-Y223N	10	10	10	12	18	16	10	1 15/16	P-331
222	7	7	10	12	12	10	12	12	18	10	1 11/16	P3-Y227N	10	10	10	12	18	16	7	1 15/16	P-331
245	7	7	10	12	10	10	12	10	16	10	1 11/16	P3-Y227N	10	10	7	10	16	14	7	2 3/16	P-335
270	¼	¼	7	12	10	10	12	10	16	10	1 11/16	P3-Y227N	10	10	7	10	16	14	7	2 3/16	P-335
300	¼	¼	7	12	10	10	12	10	16	7	1 15/16	P3-Y231N	10	10	7	10	16	14	¼	2 7/16	P-339
330	¼	¼	7	12	7	10	12	10	16	7	2 3/16	P3-Y235N	7	7	7	7	16	12	¼	2 11/16	P-343
365	3/8	3/8	–	12	7	10	10	10	16	7	2 7/16	P3-Y239N	7	7	7	7	16	12	¼	2 11/16	P-B22443H
402	3/8	3/8	–	12	7	10	10	10	16	7	2 11/16	P-243	7	7	7	7	16	12	¼	2 15/16	P-B22447H
445	3/8	3/8	–	12	7	10	10	10	16	7	2 11/16	P-243	7	7	7	7	16	12	¼	2 15/16	P-B22447H
490	3/8	3/8	–	10	¼	10	10	7	14	¼	2 15/16	P-B22447H	7	7	¼	¼	14	12	5/16	3 3/16	P-B22455H
542	3/8	3/8	–	10	¼	10	10	7	14	¼	3 3/16	P-B22451H	7	7	¼	¼	14	12	5/16	3 11/16	P-B22459H
600	3/8	½	–	10	¼	10	10	7	14	¼	3 7/16	P-B22455H	7	7	¼	¼	14	10	5/16	4 7/16	P-B22571H
660	3/8	½	–	10	¼	10	10	7	14	¼	3 15/16	P-B22463H	7	7	¼	¼	14	10	5/16	4 7/16	P-B22571H

NOTE: Bearings are Link-Belt or equivalent.

WHEEL WEIGHTS AND WR²

BCA AIRFOIL WHEELS

SIZE	DIA. (INCHES)	CL. 1 & 2		CL. 3	
		WEIGHT (LBS)	WR² (LBS-FT²)	WEIGHT (LBS)	WR² (LBS-FT²)
182	18¼	32	9.6	34	10.2
200	20	36	13.0	39	14.0
222	22¼	51	22.7	57	25.4
245	24½	64	34.6	71	38.4
270	27	74	48.6	83	54.5
300	30	110	89.1	124	100
330	33	135	132	154	151
365	36½	159	191	183	219
402	40¼	223	325	251	366
445	44½	258	460	294	524
490	49	407	882	445	962
542	54¼	419	1110	532	1409
600	60	615	1993	681	2206
660	66	715	2803	797	3125

$$\left(\begin{matrix}\text{Equivalent WR}^2\\ \text{At Motor Shaft}\end{matrix}\right) = \text{WR}^2 \left(\frac{\text{Fan RPM}}{\text{Motor RPM}}\right)^2 \times 1.05$$

BCS BACKWARD CURVE WHEELS

SIZE	DIA. (INCHES)	CL. 1 & 2		CL. 3	
		WEIGHT (LBS)	WR² (LBS-FT²)	WEIGHT (LBS)	WR² (LBS-FT²)
122	12¼	13	1.8	16	2.2
135	13½	15	2.5	19	3.1
150	15	17	3.4	22	4.5
165	16½	27	6.6	33	8.1
182	18¼	34	10.2	41	12.3
200	20	38	13.7	46	16.6
222	22¼	54	24.1	67	29.9
245	24½	68	36.7	87	47.0
270	27	80	52.5	102	66.9
300	30	116	94.0	147	119
330	33	143	140	183	179
365	36½	168	201	218	261
402	40¼	233	340	291	424
445	44½	271	483	342	610
490	49	434	938	539	1165
542	54¼	514	1361	644	1706
600	60	647	2096	807	2615
660	66	754	2956	949	3720

SPECIAL CONSTRUCTION / MATERIALS

SPARK RESISTANT CONSTRUCTION

TYPE A

All parts of the fan in contact with the air or gas being handled shall be made of non-ferrous material.*

TYPE B

Fan shall have entirely non-ferrous wheel and a non-ferrous ring about the opening through which the shaft passes.

TYPE C

Fan shall be so constructed that a shift of the wheel or shaft will not permit two ferrous parts of the fan to rub or strike.

** American Fan Co. offers a Type "A" alternate Type "AA" spark-resistant construction which has a non-ferrous airstream except shaft, which is 316 S. S.*

CORROSION RESISTANT AND SPECIAL ALLOYS

For applications involving handling of corrosive fumes, a wide variety of protective coatings and special alloy metals are available. Consult your American Fan representative or factory for full details.

TEMPERATURE AND ALTITUDE CORRECTIONS

USING DENSITY CORRECTION FACTORS

The Capacity Tables in this bulletin are based on fans handling standard air at a density of .075 pounds per cubic foot equivalent to air at 70°F and 29.92" Hg barometric pressure. Therefore, when a fan handles air or other gases at other than standard density due to temperature, altitude or the type of gas, the published tables should be used in the following manner.

EXAMPLE: Determine RPM and BHP for a BCS-122, 2058 CFM, 7" SP, 300° F, 3000 feet elevation.

1) Determine the equivalent static pressure in the following manner: SP = required SP x density factor for conditions from the table below, ie equivalent SP = 7 x 1.61 = 11.27"

2) Using the required CFM and the equivalent SP, obtain the RPM and BHP from the capacity table, interpolating when necessary. From capacity table for size BCS-122, RPM = 4804, Equivalent BHP = 5.74

3) The RPM obtained is the correct value.

4) The BHP obtained must be corrected for the actual density as follows:

$$\text{BHP at conditions} = \frac{\text{Equivalent BHP}}{\text{Density Factor}}$$

$$= \frac{5.74}{1.61}$$

Therefore, BHP at conditions = 3.57

DERATING FACTORS FOR HI-TEMPERATURE

Tem. °F	Derating Factor std. steel	304 stainless	316 stainless
70°	1.0	.91	.91
200°	.98	.84	.88
300°	.96	.79	.81
400°	.95	.75	.79
500°	.90	.72	.78
600°	.86	.70	.76
700°	.82	.68	.74
800°	N/A	.67	.72
900°	N/A	N/A	Contact
1000°	N/A	N/A	Factory

When elevated temperatures are encountered maximum RPMs shown on performance tables must be derated according to the above table. Standard steel construction is not suitable for use in temperatures over 700°F. Aluminum wheels are suitable for use up to 250°F only.

DENSITY CORRECTION FACTORS

AIR TEMP DEG. F	ALTITUDE IN FEET ABOVE SEA LEVEL																			
	0	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	10000
–60°	.76	.77	.78	.80	.81	.83	.84	.86	.87	.89	.91	.92	.94	.96	.98	1.00	1.02	1.04	1.06	1.10
–40°	.79	.81	.82	.84	.85	.87	.88	.90	.92	.93	.95	.97	.99	1.01	1.03	1.05	1.07	1.09	1.11	1.15
–20°	.83	.85	.86	.88	.89	.91	.93	.94	.96	.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.21
0°	.87	.89	.91	.92	.94	.96	.98	.99	1.01	1.03	1.05	1.06	1.09	1.10	1.13	1.15	1.17	1.19	1.22	1.26
40°	.94	.96	.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.19	1.21	1.23	1.26	1.28	1.30	1.32	1.36
70°	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22	1.25	1.27	1.30	1.32	1.35	1.37	1.40	1.45
80°	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.19	1.21	1.23	1.26	1.28	1.30	1.33	1.36	1.38	1.41	1.43	1.48
100°	1.06	1.08	1.10	1.12	1.14	1.16	1.19	1.21	1.23	1.25	1.28	1.30	1.33	1.35	1.38	1.41	1.43	1.46	1.48	1.54
120°	1.09	1.12	1.14	1.16	1.18	1.20	1.23	1.25	1.28	1.30	1.32	1.35	1.38	1.40	1.43	1.46	1.48	1.51	1.53	1.58
140°	1.13	1.15	1.18	1.20	1.22	1.25	1.27	1.29	1.32	1.34	1.37	1.40	1.42	1.45	1.48	1.51	1.54	1.57	1.58	1.65
160°	1.17	1.19	1.22	1.24	1.26	1.29	1.31	1.34	1.36	1.39	1.42	1.44	1.47	1.50	1.53	1.56	1.59	1.62	1.64	1.70
180°	1.21	1.23	1.26	1.28	1.30	1.33	1.36	1.38	1.41	1.43	1.46	1.49	1.52	1.55	1.58	1.61	1.64	1.67	1.70	1.75
200°	1.25	1.27	1.29	1.32	1.34	1.37	1.40	1.42	1.45	1.48	1.51	1.54	1.57	1.60	1.63	1.66	1.69	1.72	1.75	1.81
250°	1.34	1.36	1.39	1.42	1.45	1.47	1.50	1.53	1.56	1.59	1.62	1.65	1.68	1.71	1.74	1.78	1.82	1.85	1.88	1.94
300°	1.43	1.46	1.49	1.52	1.55	1.58	1.61	1.64	1.67	1.70	1.74	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.00	2.08
350°	1.53	1.56	1.59	1.62	1.65	1.68	1.72	1.75	1.78	1.81	1.85	1.88	1.92	1.96	2.00	2.04	2.07	2.11	2.14	2.22
400°	1.62	1.65	1.69	1.72	1.75	1.79	1.82	1.85	1.89	1.93	1.96	2.00	2.04	2.08	2.12	2.16	2.20	2.25	2.27	2.35
450°	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.04	2.08	2.12	2.16	2.20	2.24	2.29	2.33	2.38	2.41	2.50
500°	1.81	1.85	1.88	1.92	1.96	1.99	2.03	2.07	2.11	2.15	2.19	2.23	2.28	2.32	2.36	2.41	2.46	2.51	2.54	2.62
550°	1.91	1.94	1.98	2.02	2.06	2.10	2.14	2.18	2.22	2.26	2.30	2.35	2.40	2.44	2.49	2.54	2.58	2.63	2.68	2.77
600°	2.00	2.04	2.08	2.12	2.16	2.20	2.24	2.29	2.33	2.38	2.42	2.47	2.50	2.56	2.61	2.66	2.71	2.77	2.80	2.90
650°	2.10	2.14	2.18	2.22	2.26	2.31	2.35	2.40	2.44	2.49	2.54	2.58	2.63	2.68	2.74	2.79	2.84	2.90	2.94	3.04
700°	2.19	2.23	2.27	2.32	2.36	2.41	2.46	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.86	2.91	2.97	3.03	3.06	3.18
750°	2.28	2.33	2.37	2.42	2.47	2.51	2.56	2.61	2.66	2.71	2.76	2.81	2.87	2.92	2.98	3.04	3.10	3.16	3.19	3.31
800°	2.38	2.43	2.48	2.52	2.57	2.62	2.66	2.72	2.76	2.81	2.86	2.90	2.98	3.02	3.10	3.14	3.21	3.26	3.33	3.45
850°	2.47	2.52	2.57	2.62	2.67	2.72	2.76	2.82	2.87	2.92	2.97	3.02	3.09	3.14	3.21	3.26	3.33	3.38	3.46	3.58
900°	2.57	2.62	2.67	2.72	2.76	2.83	2.88	2.93	2.98	3.03	3.08	3.14	3.21	3.26	3.34	3.39	3.47	3.52	3.60	3.73
950°	2.66	2.72	2.77	2.82	2.87	2.92	2.98	3.03	3.08	3.14	3.19	3.24	3.32	3.38	3.46	3.51	3.58	3.64	3.72	3.86
1000°	2.76	2.82	2.87	2.92	2.98	3.04	3.09	3.14	3.20	3.26	3.31	3.37	3.45	3.50	3.59	3.64	3.72	3.78	3.86	4.00

HIGH TEMPERATURE CONSTRUCTION

250°F - 400°F — Heat Slinger, high-temperature paint.

401°F - 700°F — Heat Slinger, high-temperature shaft seal, high-temperature paint, Arr't 1 or 8 only.

701°F - 900°F — Heat Slinger, high-temperature shaft seal, heat shield, special wheel construction including fins, Arr't 1 or 8 only, fixed and floating bearings, high-temperature paint.

901°F - 1000° — Heat Slinger, high-temperature shaft seal, heat shield, 316 S.S. wheel with fins, 316 S.S. shaft, fixed and floating oil lubricated bearings, Arr't 1 or 8 only, high-temperature paint on non S.S. parts.

CONVERSION FACTORS

Volume — cubic meters/sec. x 2119 = cubic feet/min. (CFM)

Pressure — Pascals (N/m^2) x 0.004 = inches water

Power — kilowatts (Kw) x 1.341 = horsepower

Length — centimeters (cm) x 0.3937 = inches

Temperature — (°C x 1.8) + 32 = °F

BCS-542

SINGLE WIDTH

WHEEL DIAMETER: 54.25"
WHEEL CIRCUMFERENCE: 14.20'
OUTLET AREA: 16.255 SQ. FT.
OUTLET SIZE: 43 1/16" x 54 3/8"
INLET DIAMETER: 56 3/4" O.D.

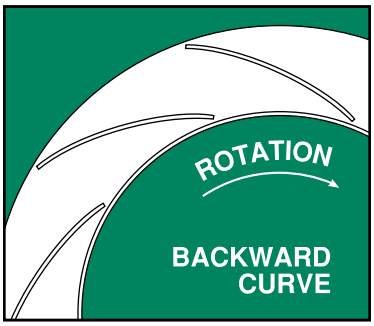
American Fan Company

CLASS 1 | CLASS 2 | CLASS 3

MAX SPEEDS	CLASS 1	CLASS 2	CLASS 3
UP TO 250°F	775	1011	1355
251°F TO 400°F*	736	960	1287
401°F TO 700°F*	636	829	1111
ABOVE 700°F	CONTACT FACTORY		

*SPECIAL HI-TEMP CONSTRUCTION REQUIRED

TIP SPEED (FPM) = 14.20 x RPM MAX BHP = 94.539 x (RPM/1000)^3



CFM	OV	0.25" SP RPM	0.25" SP BHP	0.50" SP RPM	0.50" SP BHP	0.75" SP RPM	0.75" SP BHP	1.00" SP RPM	1.00" SP BHP	1.50" SP RPM	1.50" SP BHP	2.00" SP RPM	2.00" SP BHP	2.50" SP RPM	2.50" SP BHP	3.00" SP RPM	3.00" SP BHP	3.50" SP RPM	3.50" SP BHP
12968	800	206	0.79	243	1.36	276	1.98	310	2.72	368	4.20								
14589	900	224	0.98	257	1.58	288	2.25	317	2.98	374	4.67	423	6.32						
16210	1000	243	1.21	271	1.84	300	2.56	328	3.32	381	5.07	430	6.94						
17831	1100	262	1.49	286	2.13	314	2.90	340	3.71	388	5.46	436	7.53	479	9.56	518	11.60		
19453	1200	281	1.81	303	2.48	329	3.28	353	4.15	399	5.96	443	8.04	486	10.33	525	12.52	560	14.74
21074	1300	301	2.16	322	2.89	343	3.70	367	4.61	411	6.54	450	8.58	493	10.96	531	13.48	567	15.82
22695	1400	321	2.56	340	3.36	359	4.16	382	5.12	423	7.16	462	9.29	500	11.62	538	14.23	573	16.94
24316	1500	341	3.02	359	3.89	377	4.73	396	5.68	436	7.82	474	10.05	509	12.39	545	15.01	580	17.82
25937	1600	361	3.53	379	4.48	395	5.36	412	6.30	450	8.53	487	10.87	521	13.31	552	15.83	587	18.73
27558	1700	381	4.10	398	5.13	414	6.06	429	7.02	465	9.30	499	11.75	533	14.28	564	16.90	594	19.67
29179	1800	402	4.74	418	5.82	433	6.84	448	7.84	480	10.12	513	12.67	545	15.32	576	18.04	605	20.84
30800	1900	422	5.45	438	6.58	452	7.68	466	8.73	495	11.01	528	13.66	558	16.41	589	19.23	617	22.13
32421	2000	443	6.23	458	7.42	471	8.61	485	9.70	511	11.97	543	14.71	572	17.56	601	20.50	629	23.50
34042	2100	464	7.09	478	8.33	491	9.60	504	10.76	529	13.12	557	15.83	587	18.78	614	21.83	642	24.93
35663	2200	484	8.02	498	9.32	511	10.65	523	11.90	547	14.35	573	17.02	601	20.07	628	23.22	654	26.44

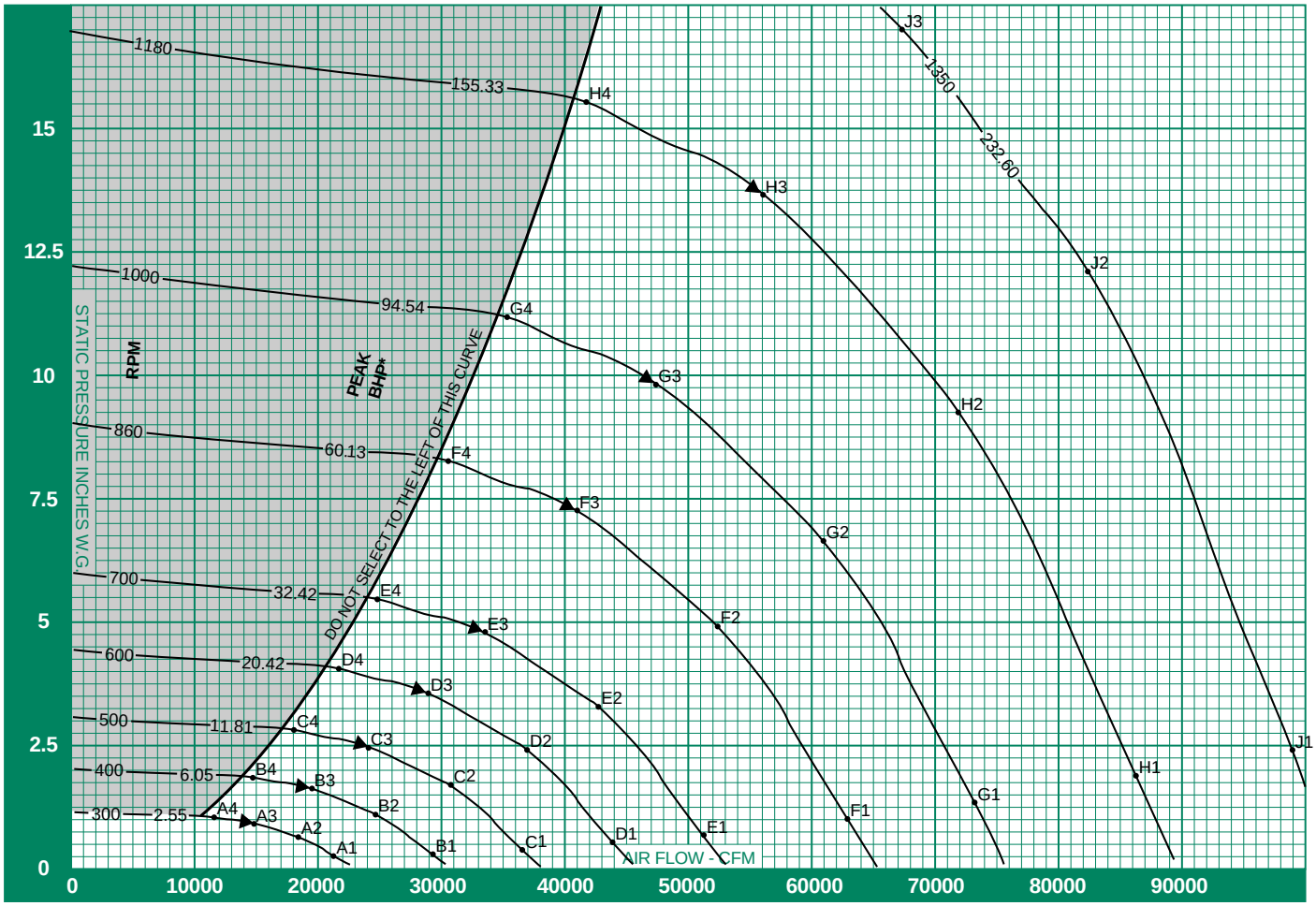
CFM	OV	4.00" SP RPM	4.00" SP BHP	4.50" SP RPM	4.50" SP BHP	5.00" SP RPM	5.00" SP BHP	5.50" SP RPM	5.50" SP BHP	6.00" SP RPM	6.00" SP BHP	6.50" SP RPM	6.50" SP BHP	7.00" SP RPM	7.00" SP BHP	7.50" SP RPM	7.50" SP BHP	8.00" SP RPM	8.00" SP BHP
29179	1800	634	23.84	665	27.13	694	30.52	722	33.99	749	37.38	774	40.62	799	43.90	823	47.22	846	50.59
30800	1900	644	25.11	672	28.33	701	31.81	729	35.38	755	39.03	781	42.71	806	46.11	830	49.55	853	53.03
32421	2000	656	26.57	681	29.72	708	33.15	736	36.81	762	40.55	788	44.37	812	48.28	836	51.94	859	55.54
34042	2100	668	28.10	693	31.35	717	34.67	743	38.28	769	42.11	795	46.03	819	50.02	843	54.09	866	58.11
35663	2200	680	29.71	705	33.05	729	36.47	752	39.95	776	43.72	802	47.73	826	51.82	850	55.98	873	60.21
37285	2300	693	31.40	718	34.84	741	38.35	764	41.92	786	45.56	809	49.48	833	53.66	857	57.91	880	62.24
38906	2400	705	33.16	730	36.70	753	40.31	776	43.98	798	47.72	818	51.51	840	55.55	864	59.89	887	64.31
40527	2500	719	34.99	742	38.65	766	42.36	788	46.13	810	49.96	830	53.85	850	57.80	871	61.93	894	66.44
42148	2600	734	36.89	755	40.68	778	44.49	800	48.36	822	52.29	842	56.28	862	60.33	882	64.43	901	68.62
43769	2700	748	38.89	770	42.77	791	46.72	813	50.69	834	54.72	855	58.80	874	62.95	894	67.15	912	71.40
45390	2800	763	40.99	784	44.96	805	49.01	825	53.11	846	57.24	867	61.42	887	65.67	906	69.96	924	74.31
47011	2900	778	43.18	799	47.25	819	51.39	839	55.61	859	59.86	879	64.14	899	68.48	918	72.88	936	77.32
48632	3000	793	45.47	814	49.64	834	53.88	853	58.19	872	62.57	892	66.97	911	71.40	930	75.90	949	80.44
50253	3100	808	47.87	829	52.13	849	56.47	868	60.88	886	65.35	904	69.89	924	74.43	942	79.02	961	83.66
51874	3200	823	50.37	844	54.73	863	59.17	882	63.67	901	68.24	919	72.87	936	77.57	955	82.26	973	87.00
53495	3300	840	53.14	859	57.45	878	61.98	897	66.58	916	71.24	933	75.97	950	80.76	967	85.60	986	90.44
55116	3400	858	56.20	874	60.27	893	64.90	912	69.60	930	74.36	948	79.19	965	84.07	982	89.02	998	94.01
56738	3500	877	59.39	891	63.41	909	67.94	927	72.74	945	77.60	962	82.52	979	87.50	996	92.54	1012	97.64
58359	3600	895	62.74	909	66.84	924	71.11	942	76.00	960	80.96	977	85.98	994	91.06	1010	96.19	1027	101.39
59980	3700	914	66.23	928	70.42	941	74.66	957	79.39	975	84.44	992	89.56	1009	94.74	1025	99.97	1041	105.26

CFM	OV	9.00" SP RPM	9.00" SP BHP	10.00" SP RPM	10.00" SP BHP	11.00" SP RPM	11.00" SP BHP	12.00" SP RPM	12.00" SP BHP	13.00" SP RPM	13.00" SP BHP	14.00" SP RPM	14.00" SP BHP	15.00" SP RPM	15.00" SP BHP	16.00" SP RPM	16.00" SP BHP	17.00" SP RPM	17.00" SP BHP
40527	2500	937	75.67	979	85.16	1018	94.91	1056	103.96	1092	113.01	1127	122.18	1161	131.48				
42148	2600	944	78.03	985	87.71	1025	97.64	1062	107.81	1099	117.14	1134	126.55	1168	136.08	1200	145.72		
43769	2700	951	80.45	992	90.32	1032	100.43	1069	110.78	1105	121.35	1140	131.00	1174	140.76	1207	150.64	1239	160.63
45390	2800	960	83.17	1000	92.98	1039	103.28	1076	113.82	1112	124.58	1147	135.53	1181	145.53	1213	155.64	1245	165.87
47011	2900	972	86.37	1007	95.71	1046	106.19	1083	116.91	1119	127.86	1154	139.03	1187	150.39	1220	160.74	1252	171.21
48632	3000	984	89.68	1018	99.12	1053	109.16	1090	120.07	1126	131.20	1161	142.56	1194	154.12	1227	165.89	1258	176.63
50253	3100	996	93.10	1030	102.73	1062	112.55	1097	123.29	1133	134.61	1168	146.15	1201	157.90	1233	169.85	1265	182.01
51874	3200	1008	96.63	1042	106.45	1074	116.46	1105	126.66	1140	138.09	1175	149.81	1208	161.74	1240	173.88	1272	186.22
53495	3300	1021	100.27	1054	110.29	1086	120.49	1117	130.88	1147	141.63	1182	153.54	1215	165.66	1247	177.98	1279	190.50
55116	3400	1033	104.03	1066	114.25	1098	124.65	1129	135.22	1158	145.97	1189	157.33	1222	169.64	1254	182.15	1286	194.85
56738	3500	1045	107.91	1078	118.33	1110	128.92	1141	139.69	1170	150.63	1198	161.74	1229	173.70	1261	186.39	1293	199.28
58359	3600	1058	111.92	1091	122.53	1122	133.32	1153	144.28	1182	155.41	1210	166.71	1238	178.17	1268	190.71	1300	203.79
59980	3700	1072	116.00	1103	126.86	1135	137.85	1165	149.00	1194	160.33	1222	171.82	1250	183.47	1276	195.28	1307	208.36
61601	3800	1086	120.19	1116	131.32	1147	142.51	1177	153.86	1206	165.38	1234	177.06	1262	188.91	1288	200.90	1314	213.05
63222	3900	1101	124.52	1130	135.86	1160	147.30	1190	158.85	1218	170.57	1246	182.44	1274	194.48	1300	206.67	1326	219.01

Performance shown is for installation type B & D - Free or ducted inlet, Ducted outlet. Underlined ratings indicate maximum static efficiency. Power rating (BHP) does not include drive losses. Performance ratings do not include the effects of appurtenances in the airstream.

CONSTANT SPEED PERFORMANCE CURVES

BCS-542
SINGLE WIDTH



▲ PEAK STATIC EFFICIENCY
* PEAK BHP DOES NOT INCLUDE DRIVE LOSSES

$$\% \text{ STATIC EFFICIENCY} = \frac{\text{CFM x SP x .0157}}{\text{BHP}}$$

$$\text{Outlet Velocity (OV) in feet per minute} = \frac{\text{CFM}}{\text{Outlet Area}}$$

SOUND POWER LEVELS x 10^{-12} WATT

The sound power level ratings shown are in decibels, referred to 10^{-12} watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} sound power levels for installation Type B, free inlet, ducted outlet. Ratings do not include the effects of duct end correction .

FAN RPM	FAN SP	SOUND POINT	BAND / FREQUENCY 1/63	2/125	3/250	4/500	5/1000	6/2000	7/4000	8/8000
300	0.25	A1	81	77	76	75	69	61	53	46
	0.60	A2	79	74	72	71	65	58	52	46
	0.88	A3	77	72	69	68	63	57	51	45
	1.00	A4	79	75	72	71	65	58	51	45
400	0.25	B1	94	84	85	85	80	71	63	55
	1.06	B2	89	82	79	79	74	67	61	55
	1.57	B3	86	81	75	76	72	66	60	54
	1.78	B4	87	84	77	79	75	67	61	54
500	0.33	C1	98	92	89	90	87	79	71	63
	1.66	C2	94	90	85	84	81	74	68	61
	2.45	C3	92	88	82	81	78	73	67	61
	2.78	C4	95	90	84	84	81	75	68	61
600	0.48	D1	101	100	93	94	92	85	77	69
	2.38	D2	98	96	90	88	86	80	73	67
	3.53	D3	97	94	87	85	83	78	72	66
	4.01	D4	101	96	90	87	86	81	73	66
700	0.65	E1	103	106	97	97	96	91	82	74
	3.25	E2	101	102	94	91	90	85	78	72

FAN RPM	FAN SP	SOUND POINT	BAND / FREQUENCY 1/63	2/125	3/250	4/500	5/1000	6/2000	7/4000	8/8000
700	4.80	E3	101	99	92	88	88	83	77	71
	5.45	E4	107	100	95	90	90	86	78	71
860	0.98	F1	106	113	102	101	101	97	89	81
	4.90	F2	105	108	100	96	95	92	84	78
	7.25	F3	106	105	99	92	93	89	83	77
	8.23	F4	114	106	101	95	96	92	85	78
1000	1.32	G1	109	115	108	105	105	102	94	86
	6.62	G2	107	111	105	100	99	96	89	83
	9.80	G3	109	109	103	97	96	94	88	82
	11.13	G4	116	112	106	99	99	96	90	83
1180	1.84	H1	111	117	114	108	108	106	100	91
	9.22	H2	110	115	111	104	102	100	95	88
	13.65	H3	111	114	109	102	99	98	93	87
	15.50	H4	119	118	111	105	102	101	95	88
1350	2.41	J1	114	119	120	111	111	110	104	96
	12.07	J2	113	117	116	108	105	104	99	92
	17.00	J3	114	117	113	106	102	102	97	91