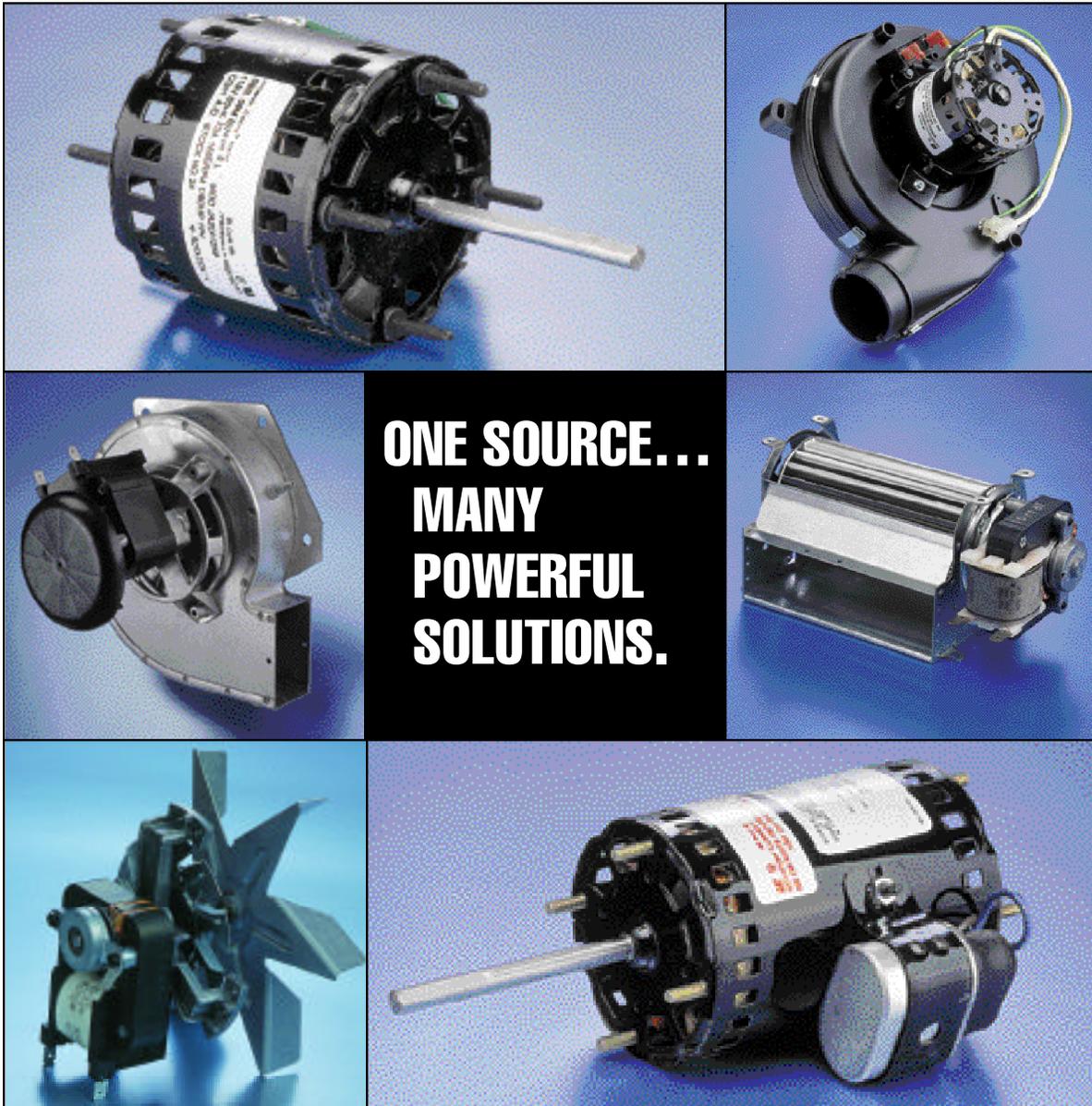


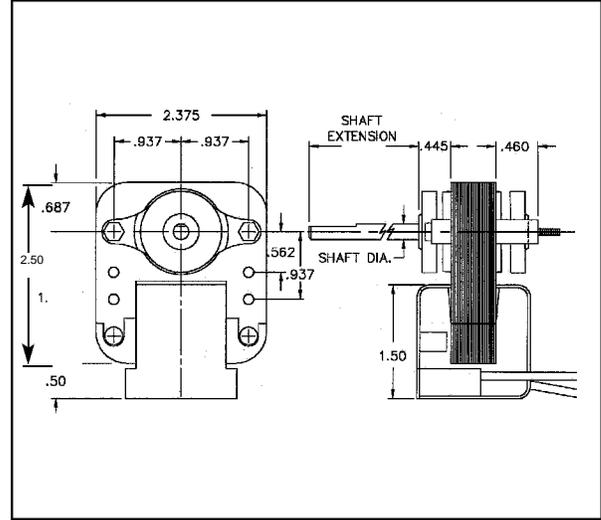
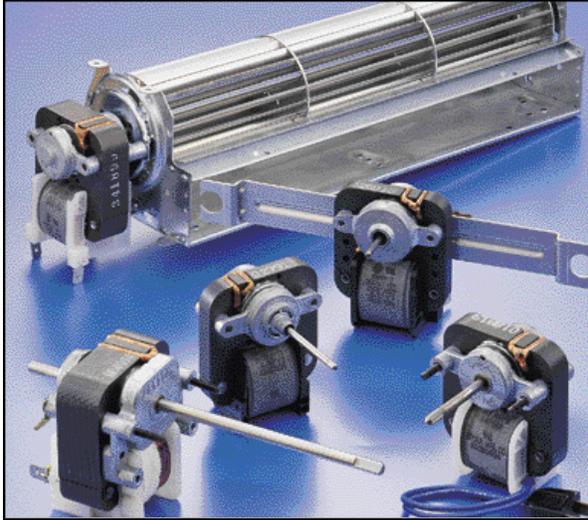
A.O.SMITH

Fractional Horsepower Motors and Specialty Blowers

Bulletin 7000



C-Frame Motors & Blowers



C-Frame Motors

Compact, reliable C-Frame sub-fractional HP motors are single coil, two-pole shaded pole style products. They are used in a wide range of applications where size and cost matter most. Typical applications include:

Bathroom/Kitchen Ventilation Fans
 Microwave Ovens
 Convection Ovens
 Furnaces
 Refrigerator
 Evaporative Cooler Fans
 Dishwashers
 Humidifiers
 Portable Medical Equipment
 Pumps
 Condenser Fans

All motors are available in one, two or three-speed designs or for use with solid state speed controls self-aligning sleeve bearings standard. Ball bearing motors are available for high temperature or high thrust conditions.

Performance Parameters:

- 2 Pole Construction
- Typical HP: 2 – 50 MHP
- AC Voltage: 115-240V
- Frequency: 50, 60 HZ
- Insulation Classes: B, F, H
- ZP & Thermally Protected
- Standard & High Efficiency Designs Available
- UL Recognized; CSA Certified
- Permanently Lubricated

Physical Parameters

Size:

2.50" L x 2.38" W

2.29" L s 2.38" W

Stack Lengths:

.375, .500, .570, .670, .750, .850, 1.00, 1.125, 1.312, 1.500, 2.0"

Mounting Dimensions

Centers 1.875" BC

Sleeve and Ball Bearing

Shaft Diameter

.125", .181", .187", .218", 6mm, .250", .312"

A.O. Smith/UPPCO Engineering

Complete application testing facilities

- Improves sample delivery
- Optimizes performance
- Reduces customer engineering effort

Design & Materials Analysis

- Ongoing processing & materials capabilities studies.
- Evaluate materials from worldwide sources.
- Joint testing programs with customers & major suppliers.
- Salt fog chamber (1hr ~ 1wk)

Matching Motor to Unit

- Engineer to engineer

Certified UL Test Laboratory

Airflow Test Capability

Sound & Vibration Analysis

Motor Performance

Accuracy

Repeatability

C-Frame Motors & Blowers 45 and 60mm Diameter

Double 180mm Tangential Blowers for Air Curtain Applications up to 250 CFM



240mm and 300mm Tangential Blowers for Gas Fireplaces up to 150 CFM



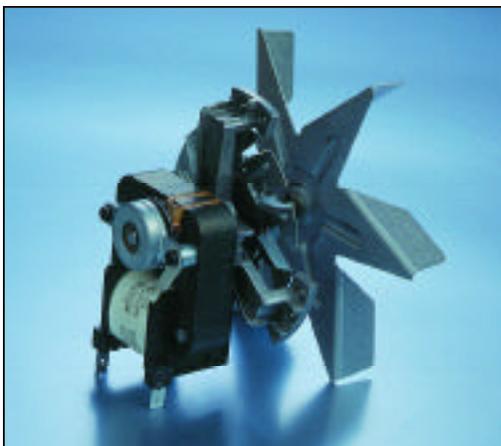
Double 180mm and Single 360mm Tangential Blowers for Commercial Refrigeration up to 250 CFM



120mm and 180mm Tangential Blowers for Electric Space Heating up to 75 CFM



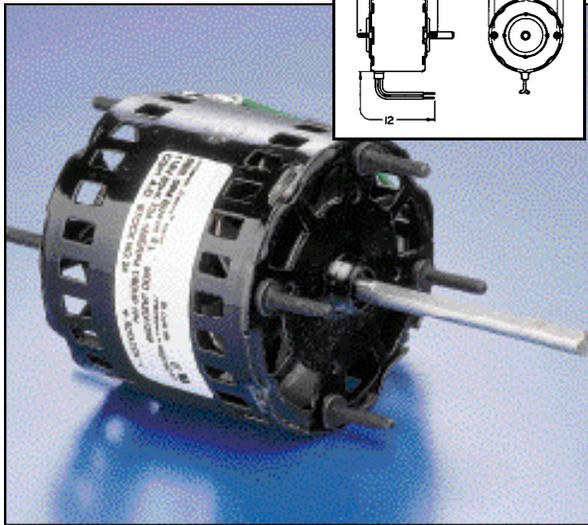
Radial Hot Air Circulator for Electric or Gas Convection Ovens



120mm Tangential Blower for Appliance Electronics Cooling up to 35 CFM



3.3" Frame Shaded Pole



115V-60Hz

Shaded Pole - 2 & 4 Pole							
Horsepower	Speed	Amps	Watts	Torque		*A" Dim. (in.)	*A" Dim. (mm)
				Start	Load		
1/70	3000	0.60	45	2.0	4.8	2.50	63.5
1/70	1550	0.70	50	3.5	9.3	2.25	57.2
1/50	3000	0.70	55	2.9	6.7	2.75	69.9
1/50	1550	0.90	75	5.0	13.0	2.50	63.5
1/30	3000	1.10	85	3.7	11.2	3.00	76.2
1/30	1550	1.15	95	6.0	19.5	2.75	69.9
1/25	3000	1.20	95	4.6	13.4	3.22	81.8
1/25	1550	1.30	110	7.0	26.0	3.00	76.2
1/15	3000	1.70	150	7.0	22.4	3.72	94.5
1/15	1550	1.95	200	12.0	43.0	3.47	88.1
1/12	3000	2.70	188	8.0	28.0	3.97	100.8

(Watt range SP: 5-45)

NOTE: All motors may be designed for optional voltages and 50 HZ operation.

3.3" Frame Shaded Pole

The 3.3 Frame motor was designed to utilize the A.O. Smith four perfect subassembly technology to assure precise mating of the rotor, stator and both bearing brackets for superior quality motors with reduced noise level. The bearing brackets for the 3.3 Frame motor have been re-designed to the state-of-the-art processes allowing free aligning bearings with increased oil capacity for extended bearing life.

The 3.3 Frame Shaded Pole motor has the following features available to fit most applications:

- UL recognized & CSA certified
- 2 Pole – 3000 RPM
- 4 Pole – 1550 RPM
- Voltage range 115 volts to 460 volts – 60 HZ/50 HZ
- Single and multi-speeds

- Self-aligning sleeve bearings are standard
- Ball bearings optional
- Shaft diameter 5/16" standard – 1/4" and 3/8" an option
- Aluminum die cast and stamped steel bearing brackets with cushioned or rigid ball bearings are available
- Varnish impregnated windings with high temperature moisture resistant magnet wire coatings
- Rotor combinations to meet your torque requirements
- Motor enclosure options – open ventilated, drip proof, fan cooled and totally enclosed
- Thermal overload protected or impedance protected
- Input lead wire is of high temperature or to your specifications

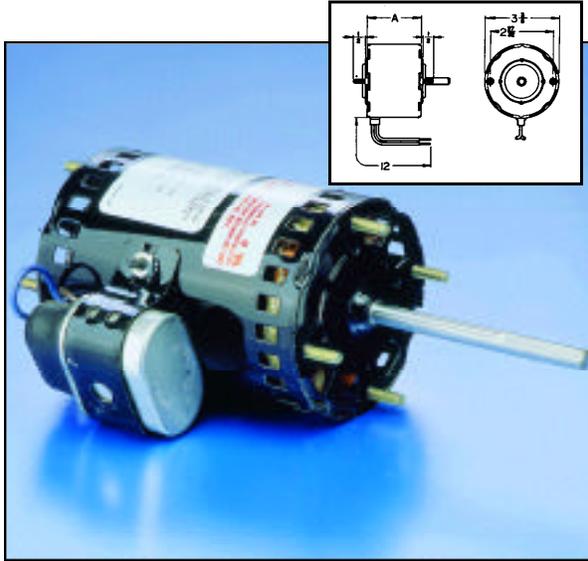
Optional mounting provisions:

- Stud, flex mount, bracket, resilient and base mount

Typical 3.3 Frame Applications

- Range/Cooker Hoods
- Kitchen/Bathroom Ventilators
- Pumps
- Humidifiers/Dehumidifiers
- Room Air Conditioners
- Electronic Cooling
- Mixing Equipment
- Business Equipment
- Warm Air Central Heating Fans
- Refrigeration Condenser Fans
- Refrigerated Display Cabinets
- Evaporative Coolers
- Walk-in Coolers
- Vending Machines
- Exhaust Fans
- Medical Equipment
- Furnace Combustion Blowers
- Gear Trains
- Computer Cooling
- Compressors

3.3" Frame Permanent Split Capacitor



115V-60Hz

Horsepower	Speed	Amps	Watts	Torque		"A" Dim. (in.)	"A" Dim. (mm)
				Start	Load		
				PSC - 2 & 4 Pole			
1/70	1550	0.45	36	5.0	9.3	3.00	76.2
1/50	3000	0.40	40	3.5	6.7	3.00	76.2
1/50	1550	0.60	60	10.0	14.0	3.22	81.8
1/25	3000	0.68	60	6.0	13.0	3.22	81.8
1/25	1550	1.00	80	14.0	26.0	3.47	88.1
1/15	3000	1.11	115	9.0	22.5	3.47	88.1
1/15	1550	1.50	130	18.0	42.0	3.97	100.8
1/8	3000	1.80	167	15.0	42.0	3.97	100.8
1/8	1550	2.25	207	26.0	81.0	4.63	117.5
1/5	3000	2.70	250	20.0	67.0	4.63	117.5

(Watt range SP: 15-140)

NOTE: All motors may be designed for optional voltages and 50 HZ operation.

3.3" Frame Permanent Split Capacitor Split Phase - Capacitor Start - Three Phase

The permanent split capacitor version of the 3.3 Frame motor is designed for energy efficiency. A PSC motor has a capacitor permanently connected in series with the auxiliary winding for energy efficiency. The design permits machine assembly and inspection to attain the highest form of quality.

The 3.3 Frame Permanent Split Capacitor, Split Phase and Capacitor Start motors have the same features available as the shaded pole motor:

- UL recognized & CSA certified
- 2 Pole – 3000 RPM
- 4 Pole – 1550 RPM
- 6 Pole – 1050 RPM
- Voltage range 115 volts to 460 volts – 60 HZ/50 HZ
- Single and multi-speed

- Self-aligning sleeve bearings are standard
- Ball bearings optional
- Shaft diameter 5/16" standard – 1/4" and 3/8" an option
- Aluminum die cast and stamped steel bearing brackets with cushioned or rigid ball bearings are available
- Varnish impregnated windings with high temperature moisture resistant magnet wire coatings
- Rotor combinations to meet your torque requirements
- Thermal overload protected or impedance protected
- Mounted capacitor on request
- Reversible rotation on request
- Motor enclosure options – open ventilation, drip proof, fan cooled and totally enclosed

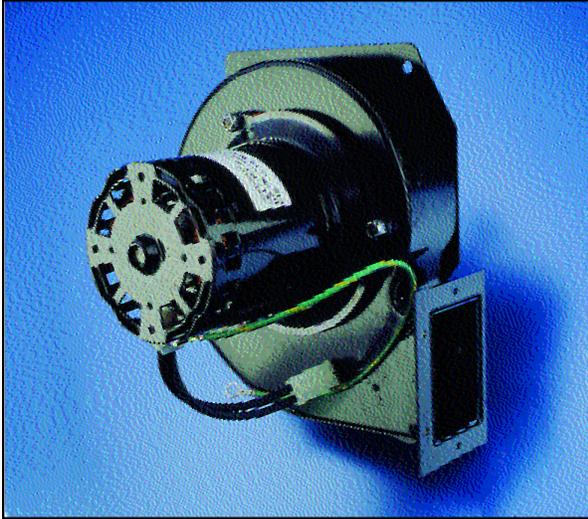
Optional mounting provisions:

- Stud, flex mount, bracket, resilient and base mount

Typical Applications

Range/Cooker Hoods
 Kitchen/Bathroom Ventilators
 Pumps
 Humidifiers/Dehumidifiers
 Room Air Conditioners
 Electronic Cooling
 Mixing Equipment
 Business Equipment
 Warm Air Central Heating Fans
 Refrigeration Condenser Fans
 Refrigerated Display Cabinets
 Evaporative Coolers
 Walk-in Coolers
 Vending Machines
 Exhaust Fans
 Medical Equipment
 Furnace Combustion Blowers
 Gear Trains
 Computer Cooling
 Hospital Beds
 Dental Chairs
 Compressors

Induced Draft Combustion Blowers



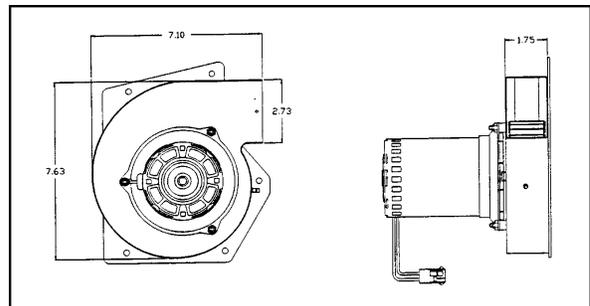
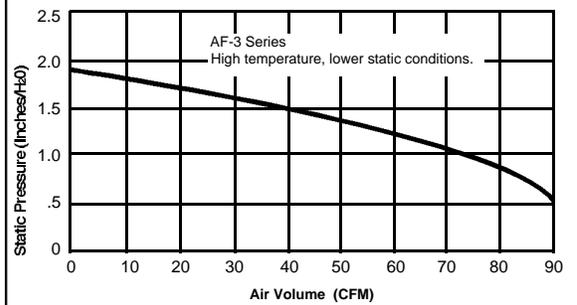
AF3 Induced Draft Combustion Blowers

Induced combustion furnace blower motors typically fail due to loss of bearing lubrication caused by exposure to extreme heat.

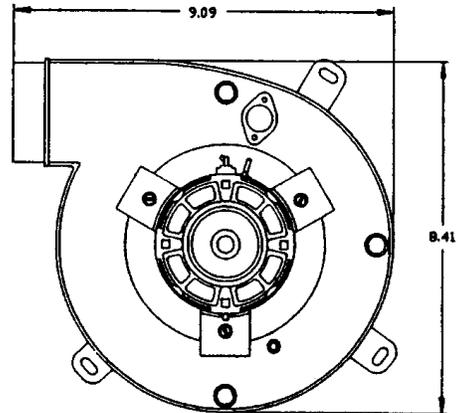
- An A.O. Smith 3.3" Energy Engineered motor with "Four Perfect Subassembly" technology. The most dependable 3.3" motor design.
- Compact motor mount design reduces overall blower length by .185", over previous design.
- Provides reliable performance across the full range of static pressures found in these furnace designs (up to 1.75 inches/H₂O and free-air volumes up to 90 CFM).
- Designed for use in mid efficiency furnaces meeting 1992 DOE efficiency regulations.
- High temperature plastic resin mount withstand typical internal mounting-point temperatures.
- Unique patented motor mount provides air passage and serves as heat shield to minimize heat rise from blower housing to motor and bearings. Heat rise is typically 10 to 15° C (18 to 27° F) lower than previous designs.
- Skeleton construction C-frame motor designs are available.

AF3-Plus Outlet Performance Data

Typical Air Flow Comparisons with Free-Air Inlet



Induced Draft Combustion Blowers

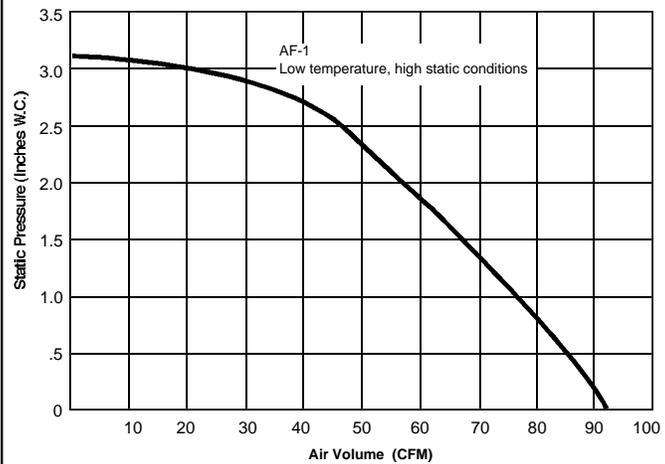


AF1 Induced Draft Combustion Blowers

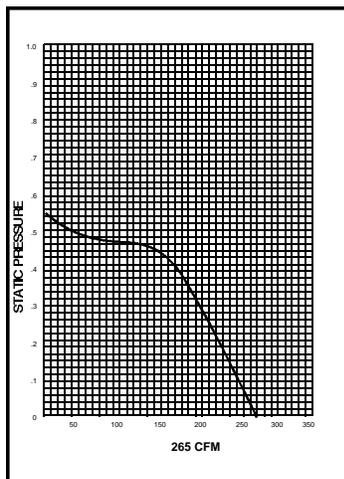
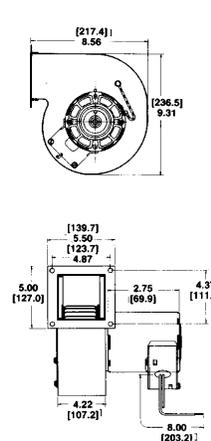
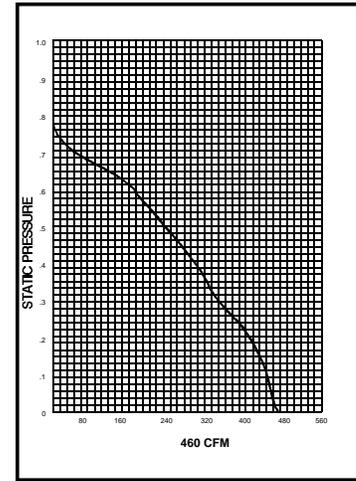
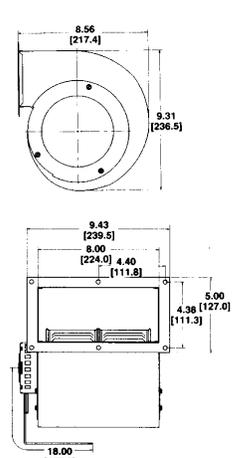
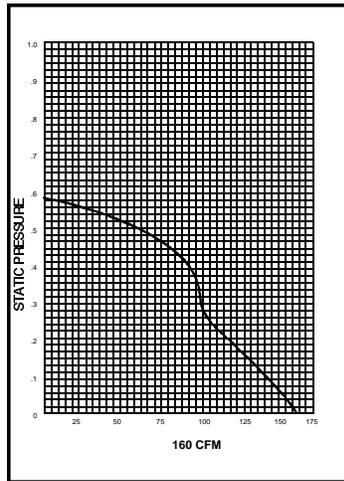
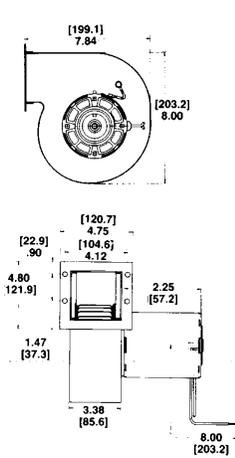
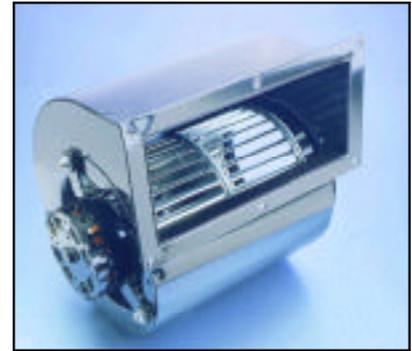
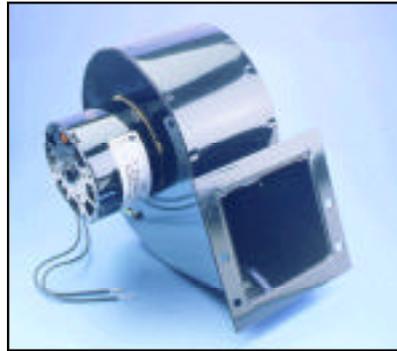
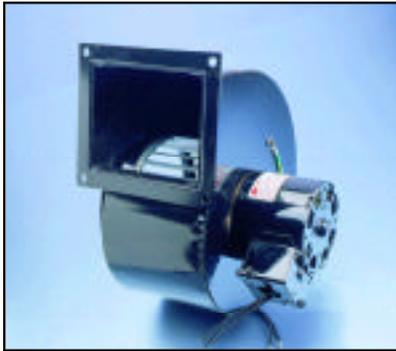
Our "AF 1" series is designed for high efficiency gas furnaces. Its backward-curve wheel design maintains the exact static pressure/CFM ratio required, and its heavy-duty molded resin enclosure resists corrosion. This model is ideal for high-static, low-temperature applications with static pressures ranging up to 3.5 inches/H₂O, and free-air delivery of up to 82 CFM.

All of these blowers are powered by the A.O. Smith 3.3" motor. This motor is the standard of the industry, and features A.O. Smith's field-proven "four Perfect Subassembly" design.

**OUTLET PERFORMANCE DATA
TYPICAL AIR FLOW CURVES FOR PLASTIC
AF INDUCED DRAFT COMBUSTION BLOWERS
WITH FREE AIR INLET**



Centrifugal Blowers



Centrifugal Blowers

Single or double blowers are available with either shaded pole or permanent split capacitor motors. A variety of bearing constructions are available to meet your application. Stamped steel blower housings and wheels are used. Two types of resilient mountings are available to ensure low vibration and noise levels. Options include inlet screens, inlet venturies, and a variety of discharge mounting flanges.

An all plastic blower unit is also available for applications involving higher static pressures and corrosive gases such as those encountered in high efficiency condensing furnaces.

Typical Applications:

- Electronic Cooling
- Exhaust Blowers
- General Cooling and Ventilation
- Wood Stoves
- Fireplace Inserts
- Draft Inducers

A.O. SMITH
ELECTRICAL PRODUCTS
COMPANY

A DIVISION OF A.O. SMITH CORPORATION



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