

# <sup>®</sup> **REZNOR**

## **DIRECT FIRED HEATING & MAKEUP AIR CATALOG**

### **COMMERCIAL/INDUSTRIAL HEATERS AND MAKEUP AIR SYSTEMS**

#### **FUEL**

**Natural Gas**

**Propane**

#### **CAPACITIES**

**20 - 3,000 MBH**

**1,000 - 28,000 CFM**

#### **AIR CONTROLS**

**100% O/A w/Constant Air Volume**

**100% O/A w/Variable Air Volume**

**Combination O/A - R/A w/Constant  
Air Volume**

**Visit [www.ReznorHVAC.com](http://www.ReznorHVAC.com) for  
more information.**

**Form C-RDF-0614 (Version G)**

## BACKGROUND

Reznor was founded in 1888 to manufacture the “Reznor” reflector heater, which used a luminous flame gas burner developed by George Reznor. This technological breakthrough was an immediate success and hastened the expansion of gas heating in residential and commercial applications. Technological development and innovation have been the hallmark of Reznor products through the years. The development of the forced air gas unit heater, the modular Thermocore® heat exchanger, and the high-efficiency, sealed-draft Venturion® unit heater have kept Reznor products at the forefront of technological advances in commercial and industrial gas heating. As a result of this pioneering role in the heating, makeup air, and ventilating equipment field, the products offered today are the most advanced in engineering design to satisfy a wide variety of applications.

## FACILITIES

Reznor heaters were first manufactured and sold in Mercer, Pennsylvania (70 miles north of Pittsburgh) in 1888. Over the years, the company has grown and expanded. Today, with sales worldwide, Reznor products are being manufactured at six different facilities throughout North America and Europe.

## PRODUCT SCOPE

Well-equipped engineering laboratories for both product development and testing can be found at many of the manufacturing sites. All domestic lab sites are agency approved.

Reznor Products include a complete line of heating, makeup air and ventilating systems, using gas, oil, hot water/steam, or electric heat sources. Reznor heater catalogs are designed to aid the engineer, architect or contractor in specifying the correct equipment for all standard and special applications. Complete data is presented on unit heaters, duct furnaces, infrared heaters, makeup air systems, pre-engineered custom-designed systems, and evaporative cooling modules. Consult your local Reznor Sales Representative for further assistance in specifying Reznor Equipment for your specific application.

## SERVICES

Product service requirements are handled through contractors and/or distributors, with backup from local representatives and factory-based service team. Replacement parts inventories for both warranty and non-warranty requirements are maintained at service centers throughout the country and at the manufacturing facilities.

# REZNOR®

# REZNOR DIRECT FIRED HEATING AND MAKEUP AIR EQUIPMENT CATALOG

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- Eight Sizes - 1-20, 1-40, 1-50, 1-65, 2-80, 2-120, 3-180, 3-260
- Horizontal Configuration with Full Curb Cap Base
- Horizontal or Vertical (down) Discharge
- Indoor/Outdoor Installation
- 100% Outside Air with Constant Volume
  - 100% Outside Air with Variable Volume
  - Combination Outside Makeup Air/Inside Air Heating with Constant Air Volume
  - Combination Outside Makeup Air/Inside Air Heating with Potentiometer for Automatic Building Pressurization
- Electronically Controlled Discharge Air Temperature
- Remote Console for Controls
- C.S.A. Certified to the latest editions of ANSI Standards
  - ANSI Z83.18 Recirculating Direct Gas-Fired Industrial Air Heater
  - ANSI Z83.4 - CSA 3.7 Non-recirculating Direct Gas-Fired Industrial Air Heater

**NOTE:** Due to ongoing product development, all specifications in this catalog are subject to change without notice.

### TECHNICAL DATA

Model Number		1-20	1-40	1-50	1-65	2-80	2-120	3-180	3-260
Maximum Heating Capacity	MBH	400	600	750	750	1500	1500	2500	3000
	kW	117	176	220	220	440	440	733	879
Air Volume Range	CFM	1000/3000	2000/4500	3000/6000	4000/6500	6000/12000	9000/16000	11000/20000	16000/28000
	M <sup>3</sup> /hr	1700/5100	3400/7650	5100/10200	6800/11050	10200/20400	15300/27200	18700/34000	27200/47500
Maximum Temperature Rise	°F	120	120	120	120	120	120	120	120
	°C	55	55	55	55	55	55	55	55
Supply Voltage		115/1	115/1	115/1	230/1	208/3	208/3	208/3	208/3
Control Amps (110V)		6.0	6.0	6.0	3.0	3.4	3.4	3.4	3.4
Gas Connection (inches)		1	1	1	1	1 or 1-1/4	1 or 1-1/4	1, 1-1/4, or 2	1, 1-1/4, or 2
Net Weight	lbs.	915	925	935	950	1455	1505	2410	2480
	kg	415	420	424	431	660	683	1093	1125

**IMPORTANT:** Specifications are subject to change without notice. This guide is intended to provide specifications and technical information only.

This guide is not intended to be an instruction manual. When installing heating and ventilating equipment, you must check and conform to all local and national building codes. Improper installation of heating and ventilating equipment could be dangerous. Consult the manufacturer's installation manual for instructions and important warnings.

### INDOOR/OUTDOOR DIRECT-FIRED GAS HEATING/MAKEUP AIR SYSTEM FOR COMMERCIAL & INDUSTRIAL APPLICATIONS



Model RDF



ANSI Z83.4  
Non-Recirculating  
Industrial Air  
Heaters  
ANSI Z83.18  
Recirculating  
Industrial Air  
Heaters



CSA 3.7



**WARNING: GAS-FIRED APPLIANCES ARE NOT DESIGNED FOR USE IN HAZARDOUS ATMOSPHERES CONTAINING FLAMMABLE VAPORS OR COMBUSTIBLE DUST, OR ATMOSPHERES CONTAINING CHLORINATED OR HALOGENATED HYDROCARBONS. INSTALLATIONS IN PUBLIC GARAGES OR AIRPLANE HANGARS ARE PERMITTED WHEN IN ACCORDANCE WITH ANSI Z223.1 AND NFPA 54 CODES.**

**RDF Models are not approved for residential use.**

## DESCRIPTION

The Reznor Model RDF Series single-blower, direct, gas-fired units are certified by C.S.A. to ANSI Standard Z83.18 and Z83.4, CSA 3.7. The units are designed for indoor or outdoor installation with cabinets of insulated, double-wall galvalume steel construction. Configuration is horizontal with either standard horizontal discharge or optional vertical discharge. The system is factory assembled and mounted on a curb cap for single unit field installation. The RDF Series has a heating range of 20 - 3,000 MBH and an air handling capability range of 1,000 - 28,000 CFM.

The blower section includes a single blower that is statically and dynamically balanced for vibration free operation. Depending on the model size and CFM requirements, the blower is either Class I or Class II. A selection of motor horsepower and drive packages is available to match application requirements. Motor and drive packages include an IEC style contactor or starter, adjustable motor base, adjustable sheaves, and drive belts.

The direct-fired burner is cast iron with drilled ports and stainless steel mixing plates for high efficiency combustion, designed to meet ANSI emission requirements. The pilot and flame monitoring device is an electronic (hot surface) ignition system and flame supervision with 100% lockout. Burner firing rate is modulated by a temperature selector and sensor to maintain the desired discharge air temperature.

The gas train includes main and pilot gas shutoff valves, a manual shutoff leak-test valve, a pilot regulator, a pilot solenoid valve, and either dual solenoid valves or fluid power valves, depending on the application requirements that determine gas train selection. Gas trains meet ANSI Standards, and options are available to meet FM and /or GAP requirements.

## STANDARD FEATURES

Standard controls include a high and low airflow proving switches, automatic and manual high temperature limit controls, burner and blower service switches. A remote console control, a disconnect switch, a space override thermostat, a potentiometer, or a pressure sensing damper control device are all available as options or components of the air control option selected. Systems installed outdoors MUST include either an outside air hood or a Model REC evaporative cooling module.

- C.S.A. certified to ANSI Z83.18 and Z83.4 - C.S.A. 3.7
- Unit mounted electronic circuit board with diagnostic lights
- 100% makeup air
- 20 - 3,000 MBH Heating range
- 1,000 - 28,000 CFM range
- Double-wall, insulated industrial grade construction
- Horizontal configuration with horizontal discharge.
- Dynamically balanced centrifugal blower
- NEMA standard motor, IEC contactor (1/2 - 3 HP) or starter (5 - 30 HP)
- Adjustable belt drive
- Electronic modulated cast-iron burner with stainless steel mixing plates.
- Electronic modulating gas control (25:1 turndown ratio)
- Hot surface intermittent ignition system with prepurge time delay (U.S. Patent No. 5,556,272)
- 24-volt Transformer (fused secondary)
- Adjustable outside air temperature sensor (economizer)
- Safety limit controls including high and low air flow proving switches, automatic and manual high temperature limits, flame supervisor with 100% lockout
- Gas train with dual main solenoid valves, main and pilot manual shutoff valves, manual shutoff leak-test valve, pilot regulator, and pilot solenoid valve
- Burner and blower service switches

### INDOOR/OUTDOOR DIRECT-FIRED GAS HEATING/MAKEUP AIR SYSTEM FOR COMMERCIAL & INDUSTRIAL APPLICATIONS

#### OPTIONAL FEATURES - Factory Installed

- Propane gas
- Manifold arrangements to meet FM and GAP requirements
- Motor and drive options to meet CFM requirements.
- Discharge air temperature gas control systems with and without space override
- 230/1, 208/3, 230/3, 460/3, 575/3 voltage alternates
- High ambient burner cutout control
- Combination makeup air-return air with constant or variable air volume supply controlled either by a manually set potentiometer or automatically by a remote building pressure sensor
- 2-position discharge damper
- Vertical (down) discharge with or without 2-position discharge damper.
- 115-volt convenience outlet
- Built-in lighted indicator panel
- Firestat(s) - discharge and/or return, 200°F
- Freezestat (automatic reset) with time delay relay
- Interlocking and/or control relays
- High and/or low gas pressure switches

#### OPTIONAL FEATURES - Field Installed

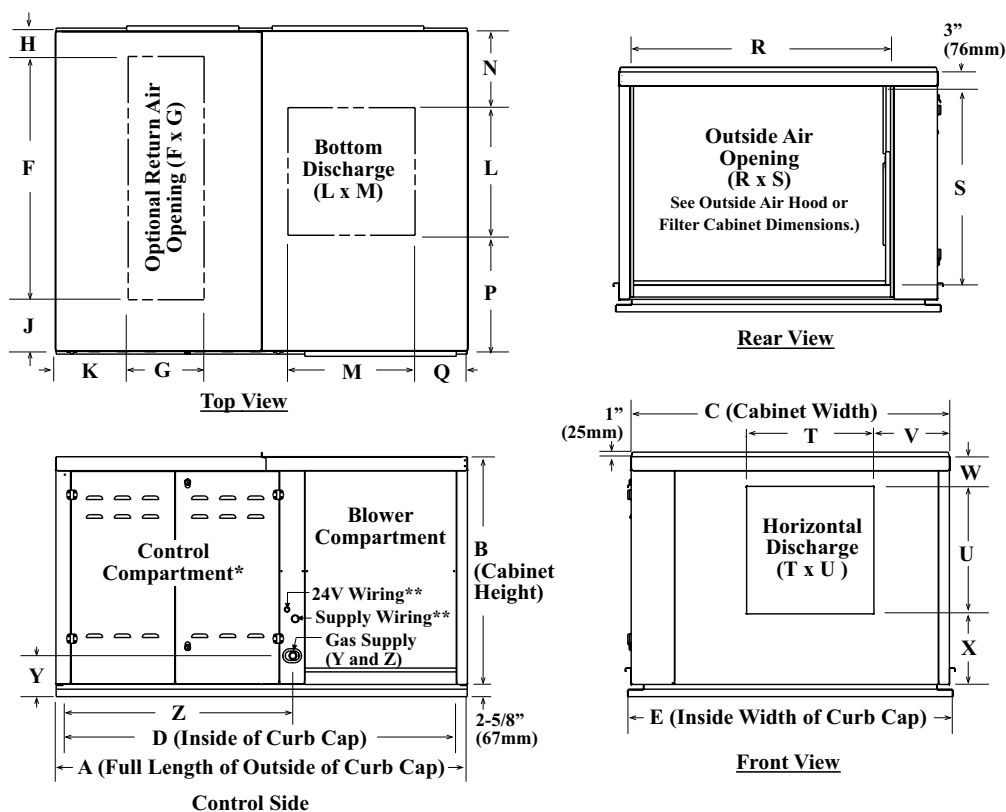
- Disconnect switch
- Screened outside air hood with moisture-eliminating louvers with or without filter section and 1" or 2" permanent filters (screened air hood or attached evaporative cooling module is required on outdoor installations to retain certification)
- Indoor filter sections with 1" or 2" permanent filters
- Roof curb - 16" high - with internal ductwork
- Add-on evaporative cooling module is available (see Evaporative Cooling Catalog)
- Remote control console

#### DIMENSIONS

+ or - 1/8" (3mm)

Dimensions (inches)												
Model Sizes	A	B	C	D	E	F	G	H	J	K	L	M
1-20-3, 1-40-3, 1-50-3, 1-65-3	88	37 1/8	44 3/16	84 13/16	45 1/2	24 1/2	10 1/2	5 7/16	14 9/32	15 5/8	21 29/32	19 1/8
2-80-3, 2-120-3	88	48 11/16	68 1/4	84 13/16	69 1/2	52	16 1/4	5 5/16	10 15/16	15 1/2	27 9/32	27 7/32
3-180-3, 3-260-3	135 3/4	61 5/8	82 9/16	132 9/16	83 1/8	64 9/16	19 1/16	5 5/32	13 13/32	21 5/8	37	37 3/32
Model Sizes	N	P	Q	R	S	T	U	V	W	X	Y	Z
1-20-3, 1-40-3, 1-50-3, 1-65-3	7 11/16	14 5/8	12 5/8	31 1/8	31 1/8	21 3/4	18 3/4	7 3/4	5 1/4	13 1/8	8 9/16	42 7/32
2-80-3, 2-120-3	16 5/16	24 21/32	11 7/32	55 3/16	42 5/8	27 1/4	27 1/4	16 5/32	6 11/32	15 3/32	8 3/4	48 15/16
3-180-3, 3-260-3	14 9/16	31 9/16	7 7/16	67 1/8	55 9/16	36 3/4	36 3/4	14 7/16	4	20 7/8	8 11/16	56
Dimensions (mm)												
Model Sizes	A	B	C	D	E	F	G	H	J	K	L	M
1-20-3, 1-40-3, 1-50-3, 1-65-3	(2,235)	(943)	(1,122)	(2,154)	(1,156)	(622)	(267)	(138)	(363)	(397)	(556)	(486)
2-80-3, 2-120-3	(2,235)	(1,237)	(1,734)	(2,154)	(1,765)	(1,321)	(413)	(135)	(278)	(394)	(693)	(691)
3-180-3, 3-260-3	(3,448)	(1,565)	(2,097)	(3,367)	(2,111)	(1,640)	(484)	(131)	(341)	(549)	(940)	(942)
Model Sizes	N	P	Q	R	S	T	U	V	W	X	Y	Z
1-20-3, 1-40-3, 1-50-3, 1-65-3	(195)	(371)	(321)	(791)	(791)	(552)	(476)	(197)	(133)	(333)	(217)	(1,072)
2-80-3, 2-120-3	(414)	(626)	(285)	(1,402)	(1,083)	(692)	(692)	(410)	(161)	(383)	(222)	(1,243)
3-180-3, 3-260-3	(370)	(802)	(189)	(1,705)	(1,411)	(933)	(933)	(367)	(102)	(530)	(221)	(1,422)

### INDOOR/OUTDOOR DIRECT-FIRED GAS HEATING/MAKEUP AIR SYSTEM FOR COMMERCIAL & INDUSTRIAL APPLICATIONS



\*RDF-2 and RDF-3 have double hinged doors as illustrated. Control compartment on RDF-1 has a single hinged door.  
 \*\* Configuration shown is for RDF-2 and RDF-3. The supply connection on an RDF-1 is above the control wiring connection.

### Air Pressure Drops

System Pressure Drop (" w.c.) <sup>1</sup>							
Model	CFM	1" Filter Pressure Drop <sup>2</sup>	2" Filter Pressure Drop <sup>2</sup>	O/A Inlet Hood Pressure Drop	Discharge Damper Pressure Drop <sup>3</sup>	External Static Pressure <sup>4</sup>	Total Adjusted Pressure Drop <sup>1</sup>
RDF-1	1,000	0.05	0.10	0.15	0.04		
	2,500	0.10	0.20	0.22	0.06		
	4,000	0.15	0.30	0.29	0.10		
	5,500	0.20	0.40	0.37	0.16		
	6,500	0.25	0.50	0.45	0.22		
RDF-2	6,000	0.05	0.10	0.15	0.04		
	8,000	0.09	0.18	0.21	0.07		
	10,000	0.13	0.26	0.27	0.10		
	12,000	0.17	0.34	0.33	0.13		
	14,000	0.21	0.42	0.40	0.18		
	16,000	0.25	0.50	0.47	0.24		
RDF-3	10,000	0.05	0.10	0.14	0.04		
	13,000	0.08	0.16	0.18	0.06		
	16,000	0.11	0.22	0.22	0.09		
	19,000	0.14	0.28	0.27	0.12		
	22,000	0.17	0.34	0.33	0.15		
	25,000	0.20	0.40	0.39	0.18		
	28,000	0.23	0.46	0.46	0.22		

<sup>1</sup> To enter the RPM/BHP chart, the "Total Adjusted Pressure Drop" must be determined. The "Total Adjusted Pressure Drop" is determined by adding the external pressure from ducts, registers, grilles and diffusers, to the pressure drop for selected options.

<sup>2</sup> There will be different pressure drops for filters other than 1" or 2" permanent filters provided.

<sup>3</sup> When a discharge damper or variable air volume unit is required, add in this pressure drop.

<sup>4</sup> The External Pressure Drop should include all duct work, registers, grilles, and diffusers at required CFM.

**Blower Notes:** Models RDF 1-20, 1-40, 1-50, 1-65, 2-120 have a Class I blower. Model RDF 2-80 has a Class II blower. Depending on the CFM/Static/RPM/HP requirements (see Chart on page 8), Models RDF 3-180 and 3-260 have either a Class I blower or a Class II blower. A Class II blower is an available option on Models RDF 3-180 and 3-260 equipped with a standard Class I blower.

A Class I blower is a standard blower with permanently lubricated cartridge ball bearings. A Class II blower is a heavy duty blower with pillow block bearings. The pillow block bearings have a grease fitting and should be lubricated twice a year with a high temperature, moisture-resistant grease.

Units with a 7-1/2 or 1 HP motor have a heavy duty triangular bearing support; units with a 15 to 30 HP motor have a heavy duty angle iron bearing support.

### Selection of Makeup Air Equipment

- Determine makeup air CFM based on
  - Total exhaust CFM - either from rating plates of exhaust equipment or measured
  - Infiltration CFM = (Building volume in square feet x the desired air rate change) / 60
  - Type (negative or positive) of building or "spot" pressure desired
    - For negative pressure - add the exhaust CFM and the infiltration CFM and multiply by <1 (usually .9)
    - For positive pressure - add the exhaust CFM and the infiltration CFM and multiply by >1 (usually 1.1)
- Determine makeup air BTUH based on
  - H = Q x K x ΔT
  - H = Heat output of the makeup air equipment
  - Q = Required makeup air CFM (as determined in Step 1)
  - K = Constant of 1.085
  - ΔT = Discharge air temperature minus outdoor design temperature (also identified as the temperature rise)
  - To determine BTUH input, divide H by .92.
- Calculate the Total Adjusted Pressure Drop. With the CFM and pressure drop, determine the HP from the chart.
- With this information, determine which size of system will most efficiently provide the required CFM and BTUH. Select the options that meet the specification requirements.

Capacity Schedule						²Minimum Air Flow Over Burner (Burner Length)									
Model	Air Volume Range CFM (M³/hr)	Heating Range MBH (kW)	Fan Diameter inches¹	Min/Max HP	RPM Range	CFM (M³/hr)									
						6"	12"	18"	24"	30"	36"	42"	48"	54"	60"
RDF-1-20	1000/3000	20-400	10 x 10	0.5 / 2.0	730/1600	800	1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	(1700/5100)	(6-117)				(1359)	(1699)								
RDF-1-40	2000/4500	30-600	12 x 12	0.75 / 5.0	630/1500	800	1000	1250	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	(3400/7650)	(9-176)				(1359)	(1699)	(2124)							
RDF1-50	3000/6000	38-750	15 x 15	1.0 / 5.0	570/1200	800	1000	1250	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	(5100/10200)	(11-220)				(1359)	(1699)	(2124)							
RDF-1-65	4000/6500	38-750	18 x 18	1.5 / 5.0	425/900	1000	1000	1250	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	(6800/11050)	(11-220)				(1699)	(1699)	(2124)							
RDF-2-80	6000/12000	75-1500	18 x 18	2.0 / 15.0	500/1140	1500	1500	1500	1500	1750	2000	N/A	N/A	N/A	N/A
	(10200/20400)	(22-440)				(2548)	(2548)	(2548)	(2548)	(2973)	(3398)				
RDF-2-120	9000/16000	75-1500	20 x 20	2.0 / 15.0	480/1000	2250	2250	2250	2250	2250	2250	N/A	N/A	N/A	N/A
	(15300/27200)	(22-440)				(3823)	(3823)	(3823)	(3823)	(3823)	(3823)				
RDF-3-180	11000/20000	100-2500	22 x 22	5.0 / 30.0	470/1000	2750	2750	2750	2750	2750	2750	2750	2750	2750	3000
	(18700/34000)	(29-733)				(4672)	(4672)	(4672)	(4672)	(4672)	(4672)	(4672)	(4672)	(4672)	(5097)
RDF-3-260	16000/28000	150-3000	30 x 22	7.5 / 30.0	300/660	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
	(27200/47500)	(44-879)				(6796)	(6796)	(6796)	(6796)	(6796)	(6796)	(6796)	(6796)	(6796)	(6796)

¹ Check the shaded areas in RPM/BHP chart, page 8, for Class I or Class II blowers. Class II blowers are standard on Model RDF-2-80.

² Minimum CFM over the burner increases with increases in CFM. Minimum CFM over the burner must be the amount listed on the chart or 25% of actual supply CFM, whichever is greater.

**REZNOR®****MODEL RDF  
RPM/BHP CHARTS**

Model	CFM	Total Adjusted Pressure Drop (" w.c.)												
		0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4
RDF-1-20	1000	735/0.16	840/0.23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1500	745/0.29	850/0.36	950/0.45	1050/0.54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2000	850/0.49	945/0.61	1050/0.72	1125/0.83	1205/0.95	1285/1.08	1365/1.21	N/A	N/A	N/A	N/A	N/A	N/A
	2500	945/0.83	1015/0.94	1100/1.05	1180/1.17	1250/1.30	1325/1.43	1400/1.57	1460/1.73	1520/1.88	1580/2.04	1635/2.18	N/A	N/A
	3000	1080/1.38	1155/1.49	1225/1.59	1300/1.75	1375/1.90	1445/2.06	1510/2.22	N/A	N/A	N/A	N/A	N/A	N/A
RDF-1-40	2000	630/0.39	730/0.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2500	665/0.55	740/0.68	825/0.81	895/0.94	965/1.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3000	735/0.83	820/1.00	890/1.19	955/1.36	1025/1.54	1100/1.72	1155/1.89	N/A	N/A	N/A	N/A	N/A	N/A
	3500	790/1.18	855/1.34	925/1.52	990/1.71	1055/1.90	1115/2.10	1175/2.30	1225/2.49	1280/2.66	1330/2.75	N/A	N/A	N/A
	4000	845/1.63	910/1.78	960/1.94	1030/2.10	1095/2.33	1150/2.57	1200/2.82	1250/3.06	1330/3.30	1345/3.52	1385/3.74	1430/3.96	1480/4.18
RDF-1-50	4500	N/A	965/2.53	1020/2.71	1075/2.88	1130/3.06	1180/3.23	1230/3.43	1280/3.65	1325/3.87	1365/4.11	1410/4.36	1450/4.60	N/A
	3000	570/0.66	660/0.82	735/0.99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3500	595/0.82	665/0.99	740/1.21	805/1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4000	615/1.04	685/1.26	745/1.48	810/1.71	875/1.93	930/2.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4500	640/1.43	705/1.61	770/1.80	825/2.02	880/2.26	935/2.50	985/2.74	1035/3.00	N/A	N/A	N/A	N/A	N/A
RDF-1-65	5000	710/1.91	760/2.09	815/2.30	870/2.54	920/2.78	965/3.04	1015/3.30	1065/3.60	1110/3.90	1155/4.21	N/A	N/A	N/A
	5500	745/2.32	790/2.56	840/2.81	885/2.94	935/3.28	985/3.59	1030/3.89	1075/4.21	1120/4.52	1165/4.81	N/A	N/A	N/A
	6000	785/2.86	825/3.08	870/3.30	915/3.61	965/3.93	1010/4.26	1055/4.56	1100/4.84	N/A	N/A	N/A	N/A	N/A
	4000	425/0.69	505/0.96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4500	440/0.94	520/1.15	585/1.37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RDF-1-80	5000	450/1.10	530/1.41	595/1.70	650/1.99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5500	500/1.51	565/1.56	625/2.07	675/2.36	725/2.69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6000	510/1.78	570/2.06	630/2.36	680/2.69	730/3.04	775/3.39	820/3.74	N/A	N/A	N/A	N/A	N/A	N/A
	6500	525/2.04	580/2.36	635/2.69	685/3.02	735/3.39	780/3.78	830/4.18	860/4.58	N/A	N/A	N/A	N/A	N/A
	7000	545/2.20	585/2.50	640/2.80	690/3.10	740/3.46	785/3.82	835/4.18	865/4.54	900/4.91	N/A	N/A	N/A	N/A
RDF-2-80	8000	565/2.87	610/3.25	650/3.65	700/4.05	750/4.45	795/4.85	845/5.24	875/5.62	910/6.00	945/6.38	980/6.76	1020/7.14	1055/7.50
	9000	605/3.99	640/4.31	675/4.63	715/4.95	760/5.37	805/5.79	855/6.21	885/6.63	920/7.06	955/7.50	990/8.00	1030/8.50	1065/9.00
	10000	N/A	N/A	705/5.82	745/6.24	780/6.66	815/7.08	865/7.50	895/8.00	930/8.50	965/9.00	1000/9.50	1040/10.00	1075/10.64
	11000	N/A	N/A	N/A	770/7.38	805/7.88	845/8.43	880/8.97	910/9.51	945/10.05	975/10.67	1010/11.29	1050/11.91	1085/12.53
	12000	N/A	N/A	N/A	N/A	N/A	875/10.43	905/10.97	935/11.50	970/12.00	1000/12.59	1030/13.13	1060/13.67	1095/14.22
RDF-2-120	9000	520/2.71	560/2.95	600/3.41	640/3.85	680/4.29	720/4.73	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10000	545/3.56	580/3.92	615/4.28	655/4.64	695/5.00	735/5.50	775/6.00	810/6.50	N/A	N/A	N/A	N/A	N/A
	11000	575/4.18	605/4.64	635/5.14	670/5.68	710/6.20	750/6.72	785/7.24	820/7.71	855/8.13	885/8.55	915/8.97	N/A	N/A
	12000	615/5.75	635/6.13	660/6.51	695/6.89	735/7.27	770/7.74	800/8.30	835/8.86	865/9.42	895/10.00	925/10.64	950/11.28	980/11.92
	13000	640/6.49	660/6.97	695/7.45	725/7.97	760/8.49	790/9.01	820/9.53	850/10.05	880/10.71	910/11.37	935/12.03	965/12.69	990/13.35
RDF-3-180	14000	680/6.49	705/8.85	735/9.25	760/9.65	785/10.05	815/10.65	840/11.25	870/11.85	900/12.45	925/13.05	955/13.65	980/14.25	N/A
	15000	N/A	740/10.94	760/11.36	785/11.88	810/12.40	840/12.92	865/13.44	895/13.96	920/14.48	945/15.00	N/A	N/A	N/A
	16000	N/A	N/A	790/13.03	815/13.49	840/13.95	865/14.41	890/14.87	920/15.47	N/A	N/A	N/A	N/A	N/A
	17000	N/A	655/11.44	685/12.10	710/12.76	740/13.42	765/14.10	790/14.78	820/15.53	845/16.35	870/17.17	900/17.99	925/18.81	950/19.63
	18000	N/A	N/A	705/13.98	735/14.66	760/15.40	780/16.20	805/17.00	830/17.80	855/18.60	880/19.40	910/20.20	935/21.00	960/21.80
RDF-3-260	19000	N/A	N/A	730/16.14	755/16.90	780/17.66	800/18.44	825/19.22	850/20.00	875/20.80	900/21.60	920/22.40	945/23.20	970/24.00
	20000	N/A	N/A	N/A	775/19.20	800/20.00	820/20.74	845/21.48	865/22.22	890/22.96	910/23.70	935/23.60	955/25.19	980/25.99
	16000	320/4.38	350/5.00	380/5.64	410/6.28	435/6.93	460/7.58	490/8.25	N/A	N/A	N/A	N/A	N/A	N/A
	17000	325/4.89	355/5.58	385/6.30	415/7.02	440/7.75	465/8.49	493/9.24	505/10.00	N/A	N/A	N/A	N/A	N/A
	18000	330/5.60	360/6.36	390/7.12	420/7.91	445/8.74	470/9.58	496/10.38	510/11.14	540/11.90	N/A	N/A	N/A	N/A
RDF-3-260	19000	335/6.20	365/7.00	395/7.81	423/8.63	448/9.45	472/10.28	498/11.22	515/12.16	542/13.10	560/14.14	580/15.00	N/A	N/A
	20000	345/6.96	375/7.78	405/8.60	425/9.44	450/10.28	475/11.24	500/12.22	520/13.20	545/14.18	565/15.16	585/16.14	605/17.12	N/A
	21000	355/7.80	385/8.60	410/9.40	430/10.20	455/11.16	480/12.12	503/13.08	525/14.04	547/15.00	567/15.95	587/16.85	610/17.69	625/18.62
	22000	N/A	395/9.59	415/10.50	440/11.50	460/12.50	485/13.50	505/14.50	530/15.45	550/16.35	570/17.25	590/18.16	615/19.08	630/20.00
	23000	N/A	400/10.50	420/11.50	445/12.50	465/13.50	490/14.50	510/15.50	535/16.50	555/17.50	575/18.50	595/19.50	617/20.50	635/21.50
	24000	N/A	405/11.75	430/12.75	450/13.75	475/14.75	495/15.75	515/16.75	540/17.75	560/18.75	580/19.75	600/20.80	620/21.90	640/23.02
	25000	N/A	N/A	440/14.00	460/15.00	480/16.00	500/17.00	520/18.00	545/19.00	562/20.00	582/21.10	602/22.20	622/23.32	642/24.44
	26000	N/A	N/A	450/15.00	470/16.16	490/17.34	510/18.52	530/19.70	550/20.81	565/21.85	585/22.89	605/23.94	625/25.00	645/26.08
	27000	N/A	N/A	N/A	475/17.50	495/18.50	515/19.50	535/20.62	555/21.86	570/23.11	590/24.37	610/25.54	630/26.62	647/27.70
	28000	N/A	N/A	N/A	485/19.05	505/20.20	525/21.40	540/22.60	560/23.80	580/25.00	595/26.10	615/27.20	635/28.32	650/29.44

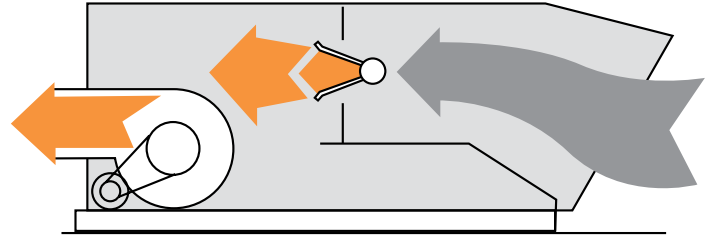
NOTE: Model RDF-2-80 has Class II type blowers as standard.

NOTE: Shaded areas require Class II type blowers.

### 100% Makeup Air with Constant Air Volume

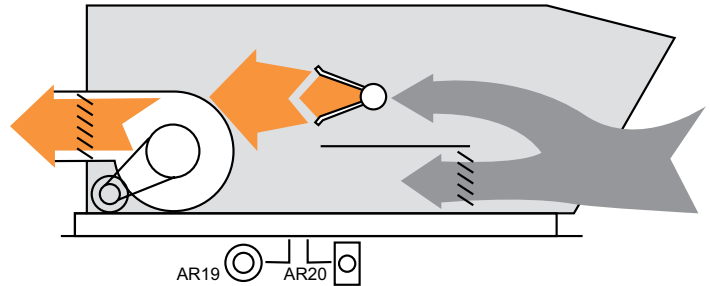
The most common method of makeup air, this arrangement provides a constant volume of outside air to match a constant amount of exhaust. It is most commonly used to match a specific process such as a kitchen range hood or an industrial process which might be used on an intermittent basis.

#### Option AR1.



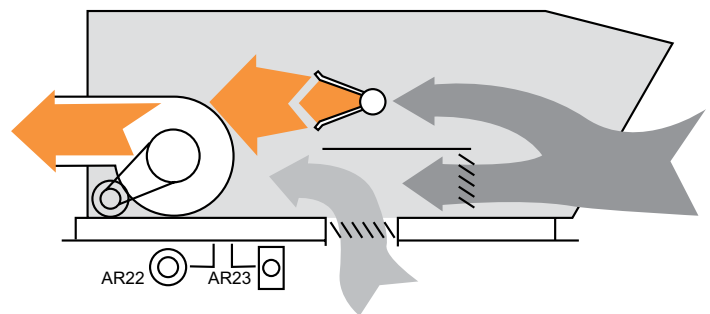
### 100% Makeup Air with Variable Air Volume

This arrangement is used to supply general makeup air to a space which has varying amounts of exhaust. A building pressure sensor controls the amount of makeup air supplied, to slightly pressurize the building even though exhaust systems may operate intermittently. The elimination of the need to heat excess amounts of makeup air and the reduction in blower motor power consumption make this system the most efficient system available. Options AR19, AR20, AR33, or AR36.



### Combination Outside/Inside Makeup Air Heating with Constant Air Volume

This system fulfills a combination of requirements by matching the required makeup air while supplying supplemental heating for worker comfort. The ability of this design to provide varying amounts of makeup air, while using return air for supplemental heating, allows the elimination of inefficient supplemental space heating equipment. Options AR22, AR23, AR34 or AR37.



#### Option Description

- AR1** 100% O/A Makeup — Constant Supply Air Volume, Horizontal Discharge (for bottom discharge, order AQ1 or AQ3)
- AR19** 100% outside air with variable supply air volume (minimum 25% rated air supply). Discharge and bypass dampers with modulating actuators. Control of discharge damper from a manually set (0-135 ohm) potentiometer. Potentiometer shipped separately.
- AR20** 100% outside air with variable supply air volume (minimum 25% rated air supply). Discharge and bypass dampers with modulating actuators. Control of discharge damper from a remotely located pressure sensor. Pressure null switch shipped separately.
- AR22** Combination outside makeup and return air (maximum 75% return air). Outside air bypass, and return air dampers with modulating actuators. Control of return air damper from a manually set potentiometer. Potentiometer shipped separately.
- AR23** Combination outside makeup and return air (maximum 75% return air). Outside air bypass, and return air dampers with modulating actuators. Control of return air damper from a remotely located pressure sensor. Pressure null switch shipped separately.
- AR33** 100% Outside air with variable supply air volume (minimum 25% rated air supply). Discharge and bypass dampers with modulating actuators. Control of discharge damper from a field-supplied 0-10 VDC or 4-25 milliamp signal (specify when ordering).
- AR34** Combination outside makeup and return air (maximum 75% return air). Outside air bypass, and return air dampers with modulating actuators. Control of return air damper from a field-supplied 0-10 VDC or 4-20 milliamp signal (specify when ordering).
- AR36** 100% outside air with variable supply air volume (minimum 25% rated air supply). Discharge and bypass dampers with modulating actuators. Control of discharge damper from a remotely located photohelic pressure sensor. Photohelic pressure sensor shipped separately.
- AR37** Combination outside makeup and return air (maximum 75% return air). Outside air bypass, and return air dampers with modulating actuators. Control of return air damper from a remotely located photohelic pressure sensor. Photohelic pressure sensor shipped separately.

### MANIFOLD ARRANGEMENTS

(Includes: Main and Pilot Manual Shut-off Valves; Main and Pilot Pressure Regulators; Pilot Solenoid Valve)

#### ALL MANIFOLDS ARE CERTIFIED TO ANSI OR GAP REQUIREMENTS

SIZE			1-20	1-40	1-50	1-65	2-80	2-120	3-180	3-260
BM75	½ psi maximum gas pressure rated manifold with manual pressure regulator, redundant main gas valves and two manual shutoff valves. For use with AG1 or AG3 gas valves up to 750 MBH. (1" npt)	AG1, AG3 Only	√	√	√	√	√	√	√	√
BM76	½ psi maximum gas pressure rated manifold with manual pressure regulator, redundant main gas valve, Maxitrol electronic modulating valve and two manual shutoff valves. For use with AG30-AG48, AG51 modulating gas control options up to 1000 MBH. (1" npt)	AG30 to AG48, AG51	√	√	√	√	√	√	√	√
BM78	2 psi maximum gas pressure rated manifold with manual pressure regulator, two main gas solenoid valves, Maxitrol electronic modulating valve, high gas pressure safety switch and two manual shutoff valves. For use with AG30-AG48, AG51 modulating gas control options up to 1000 MBH. (1" npt)	AG30 to AG48, AG51	√	√	√	√	√	√	√	√
BM79	2 psi maximum gas pressure rated manifold with two main gas solenoid valves, Maxitrol electronic modulating/regulating valve, high gas pressure safety switch and two manual shutoff valves. For use with AG30-AG48, AG51 modulating gas control options up to 2500 MBH. (1 1/4" npt)	AG30 to AG48, AG51	■	■	■	■	√	√	√	√
BM80	5 psi maximum gas pressure rated manifold with "proof-of-closure valve-seal overtravel protection" fluid power valve, Maxitrol electronic modulating/regulating valve, high gas pressure safety switch and two manual shutoff valves. For use with AG30-AG48, AG51 modulating gas control options up to 2500 MBH. (1 1/4" npt)	AG30 to AG48, AG51	■	■	■	■	√	√	√	√
BM81	5 psi maximum gas pressure rated manifold with "proof-of-closure valve-seal overtravel protection" fluid power valve, Maxitrol electronic modulating/regulating valve, high gas pressure safety switch and two manual shutoff valves. For use with AG30-AG48, AG51 modulating gas control options up to 3000 MBH. (2" npt)	AG30 to AG48, AG51	■	■	■	■	■	■	■	√

\*GAP.4.3.1 (Global asset protection) guidelines are the former IRI guidelines that changed early in 2002.

■ = Not Available

√ = Available

Minimum Supply Gas Pressure ("w.c.) for Full Fire														
Manifold Option	BM75				BM76		BM78		BM79		BM80		BM81	
with Gas Control Option	AG1		AG3		AG 30, 31, 32, 33, 35, 36, 37, 47, 48, or 51		AG 30, 31, 32, 33, 35, 36, 37, 47, 48, or 51							
Manifold Size	1"		1"		1"		1"		1-1/4"		1-1/4"		2"	
MBH	Nat	Pro	Nat	Pro	Nat	Pro	Nat	Pro	Nat	Pro	Nat	Pro	Nat	Pro
250	4.0	1.4	4.0	-	4.1	1.6	4.4	1.6	4.6	1.6	4.5	1.6	5.1	1.8
500	5.3	1.9	5.0	-	5.8	2.3	6.0	2.3	5.2	1.9	5.0	1.7	5.3	1.9
750	7.5	2.7	6.8	-	8.5	3.3	8.4	3.3	6.1	2.3	5.7	2.0	5.5	1.9
1000	-	-	-	-	12.4	4.7	11.7	4.6	7.4	2.8	6.7	2.4	5.8	2.1
1250	-	-	-	-	-	-	-	-	9.1	3.5	8.0	2.9	6.2	2.2
1500	-	-	-	-	-	-	-	-	11.2	4.3	9.6	3.5	6.6	2.4
1750	-	-	-	-	-	-	-	-	13.6	5.3	11.5	4.2	7.2	2.6
2000	-	-	-	-	-	-	-	-	16.5	6.3	13.7	5.0	7.8	2.8
2500	-	-	-	-	-	-	-	-	23.3	8.9	18.9	7.0	9.4	3.4
3000	-	-	-	-	-	-	-	-	-	-	-	-	11.3	4.1

### GENERAL

Provide a Reznor direct fired makeup air/heating unit Model RDF. The unit shall be designed to meet the standards for direct-fired gas heating equipment as developed by (the American National Standards Institute [ANSI Z83.4 for non-recirculating industrial air heaters] [ANSI Z83.18) (the Canadian Standards Association CSA 3.7) for recirculating industrial air heaters].

Provide with output capacities as shown on drawings. Units shall be fueled by (natural/propane) gas.

The unit(s) shall be supplied by a manufacturer with no less than 20 years experience in building direct fired products. Manufacturer shall have certifying agency approved laboratory for testing of such products. The unit(s) must be supplied by an ISO 9001 registered manufacturer.

The unit shall be shipped in one (1) piece from the factory completely wired and piped, with the exception of remote control devices, O/A weatherhoods, filter cabinets and roof curbs.

### CABINET

The cabinet shall be of double-wall construction with 1 inch, 1½ lb. density insulation. The construction material used shall be galvalume steel for high corrosion resistance. The unit shall be fully weatherized for outdoor or indoor mounting. All gas and electrical controls shall be mounted in fully weatherized control compartments with hinged or easily removable doors. All removable access panels shall have pocket handles for ease of handling.

The model RDF(- ) by Reznor shall provide ( ) CFM at ( ) in external static pressure. The unit shall provide ( ) BTUH with a temperature rise of ( ) °F and a final air temperature of ( ) °F.

### FEATURES

The unit shall be provided with the following features:

A 115 volt and a 24 volt transformer shall be provided for gas, safety and electrical controls. All remote wiring and controls shall be 24 volt. A motor with adjustable drive shall be included. Motors ½ through 3 hp shall be provided with internal overloads and a motor (contactor), (starter with 3 leg protection). All motors 5 hp and larger shall be provided with a motor starter with 3 leg protection.

### CONTROLS

Burner shall be cast iron with stainless steel mixing plates. CONTROLS

Gas safety controls shall be provided to meet (ANSI), (FM), (GAP1) requirements and will include a flame safeguard relay with flame sensing. Automatic and manual high temperature limits are to be provided at the discharge of the unit and a high temperature safety located at the burner. (Provide firestats at the supply (and return air). (Provide a Freezestat at the discharge of the unit.) Ignition shall be by an electronically controlled hot surface intermittent ignition system with a ceramic ignitor.

The unit shall be provided with (100% outside air, constant volume), (100% outside air, variable volume), (outside and recirculation air, constant volume). The velocity of air over the burner must always remain constant and at no time shall recirculated air pass over the burner. High and low air velocity safety pressure switches shall be provided to protect against low or high air flow over the burner.

The gas temperature controls shall be electronic with accuracy to ± 0.2°F. The nominal turndown ratio shall be 25:1 with total control between high and low fire. The unit shall be provided with prepurge time delay and arranged for positive low-fire start-up. The temperature controls shall be (discharge air control from 55°F-90°F with an adjustable space override), (adjustable discharge air reset from space temperature). The system shall be resettable from a remote temperature selector mounted on the remote control console. An adjustable outside air controller shall be provided to sense the outdoor air temperature and shut-off the burner if the outdoor temperature exceeds the setpoint on the control.

The unit shall include burner, blower (and damper) service switches (diagnostic analyzer board) in the electrical compartment. A remote operating console shall be provided with a system switch, burner and blower lights, a safety lockout light and a remote temperature selector.

Provide the following accessories:

- (a) Outside air weatherhood (with moisture eliminators).
- (b) Filter cabinet for indoor units.
- (c) Roof curb.
- (d) Weatherized fused disconnect switch.

If specification includes evaporative cooling, add a Reznor Model REC to the RDF Direct-Fired Packaged Makeup Air System. (See Evaporative Cooling Catalog).



- Four Sizes - 300, 500, 700, 1200
- Horizontal Configuration with Full Curb Cap Base
- Horizontal or Vertical (down) Discharge
- Indoor/Outdoor Installation
- 100% Outside Air
- Commercial/Industrial Makeup Air/Makeup Air Heating/with Optional Evaporative Cooling
- Approved for Installation in the U.S. and Canada to the latest edition of ANSI Standards - ANSI Z83.4, CSA 3.7 for non-recirculating direct gas-fired industrial air heaters

### TECHNICAL DATA

#### TECHNICAL DATA

SIZE			300	500	700	1200
Maximum Heating Capacity	MBH		500	750	1250	1250
	kW		147	220	366	366
Air Volume Range	CFM	ADF Models	2000-5000	2000-5500	3000-10000	3000-15500
		ADFH Models	2000-6000	2000-7300	3000-10000	3000-15500
	m <sup>3</sup> /hr	ADF Models	3400-8500	3400-9350	5100-1700	5100-26300
		ADFH Models	3400-10200	3400-12400	5100-1700	5100-26300
Maximum Temperature Rise	deg F		130	130	130	130
	deg C		54	54	54	54
Maximum Discharge Temperature	deg F	ADF	120	120	120	120
		ADFH	160	160	160	160
	deg C	ADF	49	49	49	49
		ADFH	71	71	71	71
Control Amps (24V)	<sup>A</sup>		4.0	4.0	4.0	4.0
Maximum Gas Pressure	<sup>B</sup>		2 psig	2 psig	2 psig	2 psig
Gas Connection (in.)	<sup>C</sup>		1	1	1	1
Net Weight	lbs.	ADF	700	775	930 <sup>G</sup>	950 <sup>G</sup>
		ADFH	790	885	1080 <sup>G</sup>	1100 <sup>G</sup>
	kg	ADF	318	352	422 <sup>G</sup>	431 <sup>G</sup>
		ADFH	358	401	490 <sup>G</sup>	499 <sup>G</sup>
Ship Weight	lbs.	ADF	857	1010	1300	1320
		ADFH	994	1125	1570	1590
	kg	ADF	389	458	590	599
		ADFH	451	510	712	721

<sup>A</sup> For full load amps, add motor amps to control amps.

<sup>B</sup> For inlet gas pressure over 1/2 psig but not more than 5 psig, order a field-installed regulator kit, Option CZ1 or CZ2 or an optional manifold rated for 2 psig.

<sup>C</sup> Gas connection size depends on manifold option selection; standard is 1".

**NOTE:** Due to ongoing product development, all specifications in this catalog are subject to change without notice.

**IMPORTANT:** Specifications are subject to change without notice. This guide is intended to provide specifications and technical information only.

This guide is not intended to be an instruction manual. When installing heating and ventilating equipment, you must check and conform to all local and national building codes. Improper installation of heating and ventilating equipment could be dangerous. Consult the manufacturer's installation manual for instructions and important warnings.

## MODEL ADF/ADFH 300 and 500 INDOOR/OUTDOOR DIRECT-FIRED GAS HEATING/MAKEUP AIR SYSTEM FOR INDUSTRIAL & COMMERCIAL APPLICATIONS



Model ADF



CSA 3.7



ANSI Z83.4

Non-Recirculating  
Industrial Air Heaters



**WARNING: GAS-FIRED APPLIANCES ARE NOT DESIGNED FOR USE IN HAZARDOUS ATMOSPHERES CONTAINING FLAMMABLE VAPORS OR COMBUSTIBLE DUST, OR ATMOSPHERES CONTAINING CHLORINATED OR HALOGENATED HYDROCARBONS. INSTALLATIONS IN PUBLIC GARAGES OR AIRPLANE HANGARS ARE PERMITTED WHEN IN ACCORDANCE WITH ANSI Z223.1 AND NFPA 54 CODES OR CAN1 - B149 CODES AND ENFORCING AUTHORITIES.**

**NOTES: (1) Model ADF/ADFH systems are not approved for residential use. (2) To retain certification, outdoor installations must include an optional screened inlet air hood or an optional evaporative cooling module.**

### DESCRIPTION

The Reznor ADF/ADFH Series units are direct-fired heating/makeup air systems designed for either indoor or outdoor installation. Model ADF/ADFH 300 and Model ADF/ADFH 500 systems are available to operate on either natural or propane gas. Maximum heating capacity is 750,000 BTUH. Maximum air handling capacity is 7300 CFM. The ADF Models provide discharge air at a maximum temperature of 120°F; ADFH Models are designed for applications requiring discharge air at a maximum temperature of 160°F.

Standard electrical controls include a unit-mounted electronic circuit board with diagnostic lights, a motor contactor, and an intermittent hot surface ignition system. Standard gas controls include a single-stage valve controlled by a unit-mounted discharge air controller, main and pilot pressure regulators, a pilot solenoid valve, and main and pilot manual shutoff valves. Safety controls include a flame supervisor with 100% lockout, a low air flow proving switch, a pre-purge time delay, an energy cutoff device, and both automatic and manual temperature limit controls.

The weatherized, insulated cabinet is mounted on a full curb cap base. The base is designed for mounting on a roof curb or on rails.

Model ADF/ADFH units are approved for use in the United States to the latest editions of ANSI Standard Z83.4; and Canada to CAN 3.7 for non-recirculating gas-fired industrial air heaters.

### STANDARD FEATURES

- Weatherized, insulated, single-wall cabinet
- Horizontal configuration on a full curb cap base
- Horizontal inlet for 100% outside air
- Horizontal discharge - ADF Models
- Vertical (down) discharge - ADFH Models
- Cast iron direct-fired burner with stainless steel mixing plates
- Observation port for viewing pilot
- Natural gas fuel
- Manifold arrangement to 400 MBH
- 115/1/60 supply voltage
- 1/2 HP Open dripproof motor with contactor
- Adjustable belt drive
- Single-stage gas valve with air controller
- Main and pilot gas pressure regulators
- Pilot solenoid valve
- Manual gas shutoff valves
- Unit-mounted electronic circuit board with diagnostic lights
- Flame sensor with 100% lockout
- Hot surface intermittent ignition system with pre-purge time delay (U.S. Patent No. 5,556,272)
- 24 volt transformer (fused secondary)
- Automatic and manual limit controls
- Low & high air proving switch
- Burner and blower service switches
- Emergency cutoff limit control

\* When two-speed motor is used on high speed, the burner is locked out.

### INDOOR/OUTDOOR DIRECT-FIRED GAS HEATING/MAKEUP AIR SYSTEM FOR INDUSTRIAL & COMMERCIAL APPLICATIONS (cont'd)

#### OPTIONAL FEATURES - Factory Installed:

- Vertical (down) discharge - ADF Models
- 208/1, 230/1, 208/3, 230/3, 460/3, or 575/3 supply voltage
- 3/4-10 HP Open dripproof motors; 1/2-10 HP Totally enclosed motors, 1-10 HP Premium efficiency motors, or 1-10 HP Two-speed motors for heating/cooling\* (see RPM/BHP Tables)
- Two-stage gas valve with unit-mounted ductstat, seven types of electronic modulation gas controls
- Manifold arrangements that are certified to ANSI, CSA, FM and GAP1 requirements
- Double-wall construction
- Evaporative cooling module (see Evaporative Cooling Catalog)
- Discharge dampers
- Freezestat
- Firestat
- High ambient burner cutout control
- Interlocking relays
- Gas pressure switches
- Starters for auxiliary motors

#### OPTIONAL FEATURES - Field Installed:

- Roof curb
- Outside screened air inlet hood
- Outside screened air inlet hood with integral 1" or 2" disposable, disposable pleated, or permanent aluminum filters
- Indoor filter cabinet with 1" or 2" disposable, disposable pleated, or permanent aluminum filters
- Gas inlet pressure regulator (for applications where gas supply pressure exceeds 14" or 1/2 psig; regulator must be mounted external to the cabinet)
- Control console
- Disconnect switch
- Door switch (for door heater application requirements; order Option BX1)

#### DIMENSIONS

±1/8" (3mm):

Discharge	Horizontal				Vertical *							
Models	ADF300		ADF500		ADF300		ADF500		ADFH300		ADFH500	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
A	34	864	47 3/4	1,213	34	864	47 3/4	1,213	34	864	47 3/4	1,213
B	31	787	44 3/4	1,137	31	787	47 3/4	1,213	31	787	44 3/4	1,137
C	85 3/4	2,178	85 3/4	2,178	85 3/4	2,178	85 3/4	2,178	109 1/2	2,781	109 1/2	2,781
D	11 7/8	302	12 3/4	324	-	-	-	-	-	-	-	-
E	15 1/4	387	17 3/4	451	-	-	-	-	-	-	-	-
F (inside)	15 1/4	387	14 3/4	375	16	406	14 3/4	375	16	406	14 3/4	375
G	17 1/2	445	16 3/8	416	-	-	-	-	-	-	-	-
H (inside)	13 3/4	349	16 1/8	410	-	-	-	-	-	-	-	-
J	-	-	-	-	64 5/8	1,641	62 3/8	1,584	64 5/8	1,641	62 3/8	1,584
K	-	-	-	-	13 3/4	349	16	406	13 3/4	349	16	406
M	-	-	-	-	7	178	8 1/8	206	7	178	8 1/8	206
N	-	-	-	-	8 1/8	206	21 3/4	552	8 1/8	206	21 3/4	552
P	-	-	-	-	7 3/8	187	7 3/8	187	31 1/8	791	31 1/8	791

\* Models ADFH 300/500 have a motor compartment required for high temperature discharge. Models ADF 300/500 with optional vertical discharge have same cabinet length as the standard ADF 300/500 with horizontal discharge.

## MODEL ADF/ADFH 300 and 500

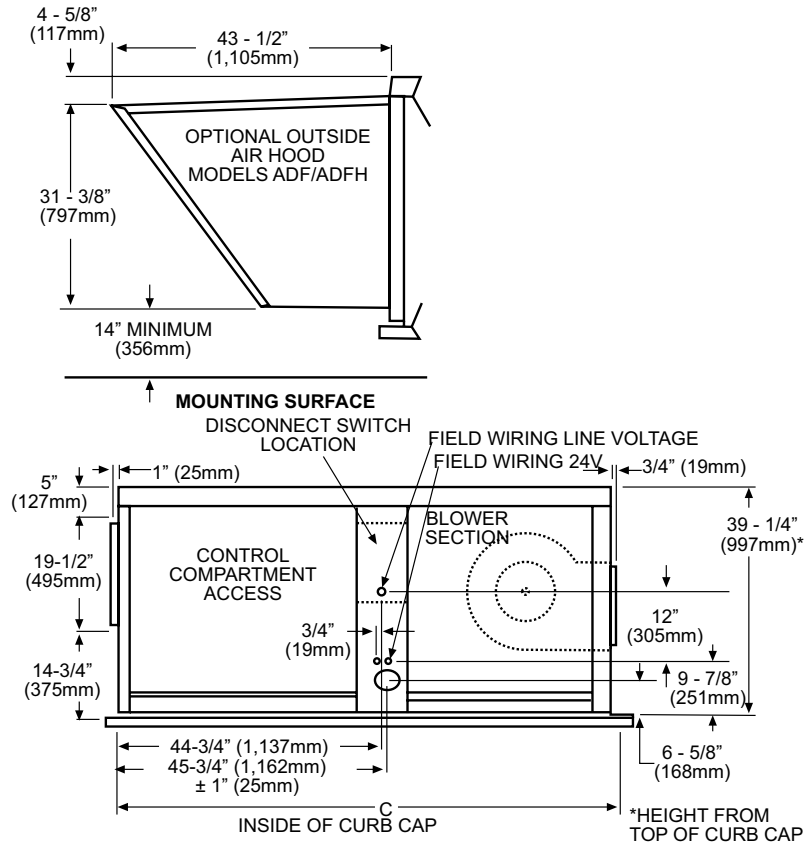
## INDOOR/OUTDOOR DIRECT-FIRED

## GAS HEATING/MAKEUP AIR SYSTEM

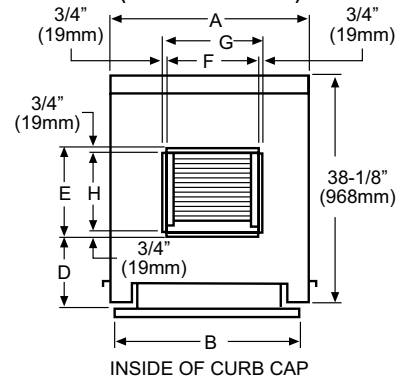
## DIMENSIONS (cont'd)

## FOR INDUSTRIAL & COMMERCIAL APPLICATIONS (cont'd)

$\pm 1/8''$  (3mm):



**FRONT VIEW - HORIZONTAL DISCHARGE  
(MODEL ADF ONLY)**



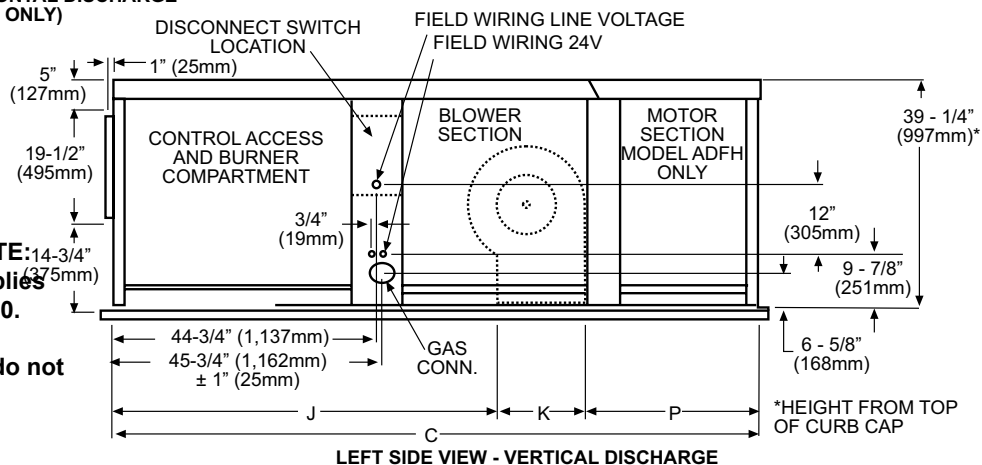
**FILTER EACH SIDE VIEW - HORIZONTAL DISCHARGE**  
**LOCATION NOTE:** (MODEL ADF ONLY)

1.  $\mathcal{C} = \{C_1, \dots, C_n\}$

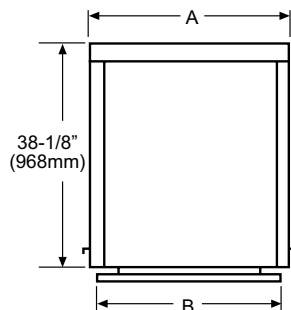
1. On outdoor installations, filter rack is part of outside air hood.
2. On indoor installations, filter rack is a separate cabinet (see page 40).

## VERTICAL DISCHARGE NOTE

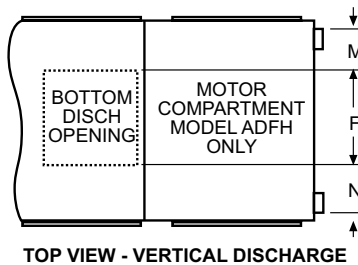
**The motor compartment applies only to Models ADFH 300/500. Models ADF 300/500 with optional vertical discharge do not have the additional cabinet.**



**LEFT SIDE VIEW - VERTICAL DISCHARGE**



**FRONT VIEW - VERTICAL DISCHARGE**



### TOP VIEW - VERTICAL DISCHARGE

Inlet Air Opening (Horizontal)		
Model	Dimension	
	in.	mm
ADF/ADFH 300	19 1/2 x 22 7/8	495 x 581
ADF/ADFH 500	19 1/2 x 36 5/8	495 x 930

DISCHARGE DUCT OPENINGS (with and without discharge dampers)		
Model	Discharge	Dimension
ADF 300/500	Horizontal	G x E
ADF 300/500	Vertical	F x K
ADFH 300/500	Vertical	F x K

**NOTE:** Motor for optional dampers with horizontal discharge is externally mounted on the control side of the damper frame. Horizontal damper frame extends 6 5/8" beyond heater duct connection.

## MODEL ADF/ADFH 700 and 1200 INDOOR/OUTDOOR DIRECT-FIRED GAS HEATING/MAKEUP AIR SYSTEM FOR INDUSTRIAL & COMMERCIAL APPLICATIONS



Model ADF



CSA 3.7



ANSI Z83.4  
Non-Recirculating  
Industrial Air Heaters



**WARNING: GAS-FIRED APPLIANCES ARE NOT DESIGNED FOR USE IN HAZARDOUS ATMOSPHERES CONTAINING FLAMMABLE VAPORS OR COMBUSTIBLE DUST, OR ATMOSPHERES CONTAINING CHLORINATED OR HALOGENATED HYDROCARBONS. INSTALLATIONS IN PUBLIC GARAGES OR AIRPLANE HANGARS ARE PERMITTED WHEN IN ACCORDANCE WITH ANSI Z223.1 AND NFPA 54 CODES OR CAN1- B149 CODES AND ENFORCING AUTHORITIES.**

**NOTES: (1) Model ADF/ADFH systems are not approved for residential use. (2) To retain certification, outdoor installations must include an optional screened inlet air hood or an optional evaporative cooling module.**

### DESCRIPTION

The Reznor ADF/ADFH Series units are direct-fired heating/makeup air systems designed for either indoor or outdoor installation. Model ADF/ADFH 700 and Model ADF/ADFH 1200 systems are available to operate on either natural or propane gas. Maximum heating capacity is 1,250,000 BTUH. Maximum air handling capacity is 15500 CFM. The ADF Models provide discharge air at a maximum temperature of 120°F; ADFH Models are designed for application requiring discharge air at a maximum temperature of 160°F.

Standard electrical controls include a unit-mounted electronic circuit board with diagnostic lights, a motor contactor, and an intermittent hot surface ignition system. Standard gas controls include a single-stage valve controlled by a unit-mounted discharge air controller, main and pilot pressure regulators, a pilot solenoid valve, and main and pilot manual shutoff valves. Safety controls include a flame supervisor with 100% lockout, a low air flow proving switch, a pre-purge time delay, an energy cutoff device, and both automatic and manual temperature limit controls.

The weatherized insulated cabinet is mounted on a full curb cap base. The base is designed for mounting on a roof curb or on rails. Model ADF/ADFH units are approved for use in The United States to the latest editions of ANSI Standard Z83.4; and Canada to CAN 3.7 for non-recirculating gas-fired industrial air heaters.

### STANDARD FEATURES

- Weatherized, insulated single-wall cabinet
- Horizontal configuration on a full curb cap base
- Horizontal inlet for 100% outside air
- Horizontal discharge - ADF Models
- Vertical (down) discharge - ADFH Models
- Cast iron direct-fired burner with stainless steel mixing plates
- Observation port for viewing pilot
- Natural gas fuel
- Manifold arrangement to 400 MBH
- 115/1/60 supply voltage
- 1 HP Open dripproof motor with contactor
- Adjustable belt drive
- Single-stage gas valve with air controller
- Main and pilot gas pressure regulators
- Pilot solenoid valve
- Manual gas shutoff valves
- Unit-mounted electronic circuit board with diagnostic lights
- Flame sensor with 100% lockout
- Hot surface intermittent ignition system with pre-purge time delay (U.S. Patent No. 5,556,272)
- 24 volt transformer (fused secondary)
- Automatic and manual limit controls
- Low & high air proving switch
- Burner and blower service switches
- Emergency cutoff limit control

\* When two-speed motor is used on high speed, the burner is locked out.

**INDOOR/OUTDOOR DIRECT-FIRED  
GAS HEATING/MAKEUP AIR SYSTEM  
FOR INDUSTRIAL & COMMERCIAL APPLICATIONS (cont'd)**

### OPTIONAL FEATURES - Factory Installed

- Vertical (down) discharge - ADF Models (requires additional motor compartment)
- 208/1, 230/1, 208/3, 230/3, 460/3, or 575/3 supply voltage motors, 1-20 HP premium efficiency motors, or 1-10 HP Two-speed motors for heating/cooling\* (see RPM/BHP Tables)
- Two-stage gas valve with unit mounted ductstat, seven types of electronic modulation gas controls
- Manifold arrangements to meet IRI and /or FM insurance requirements
- Double-wall construction
- Discharge dampers
- Freezestat
- Firestat
- High ambient burner cutout control
- Interlocking relays
- Gas pressure switches
- Starters for auxiliary motors

### OPTIONAL FEATURES - Field Installed

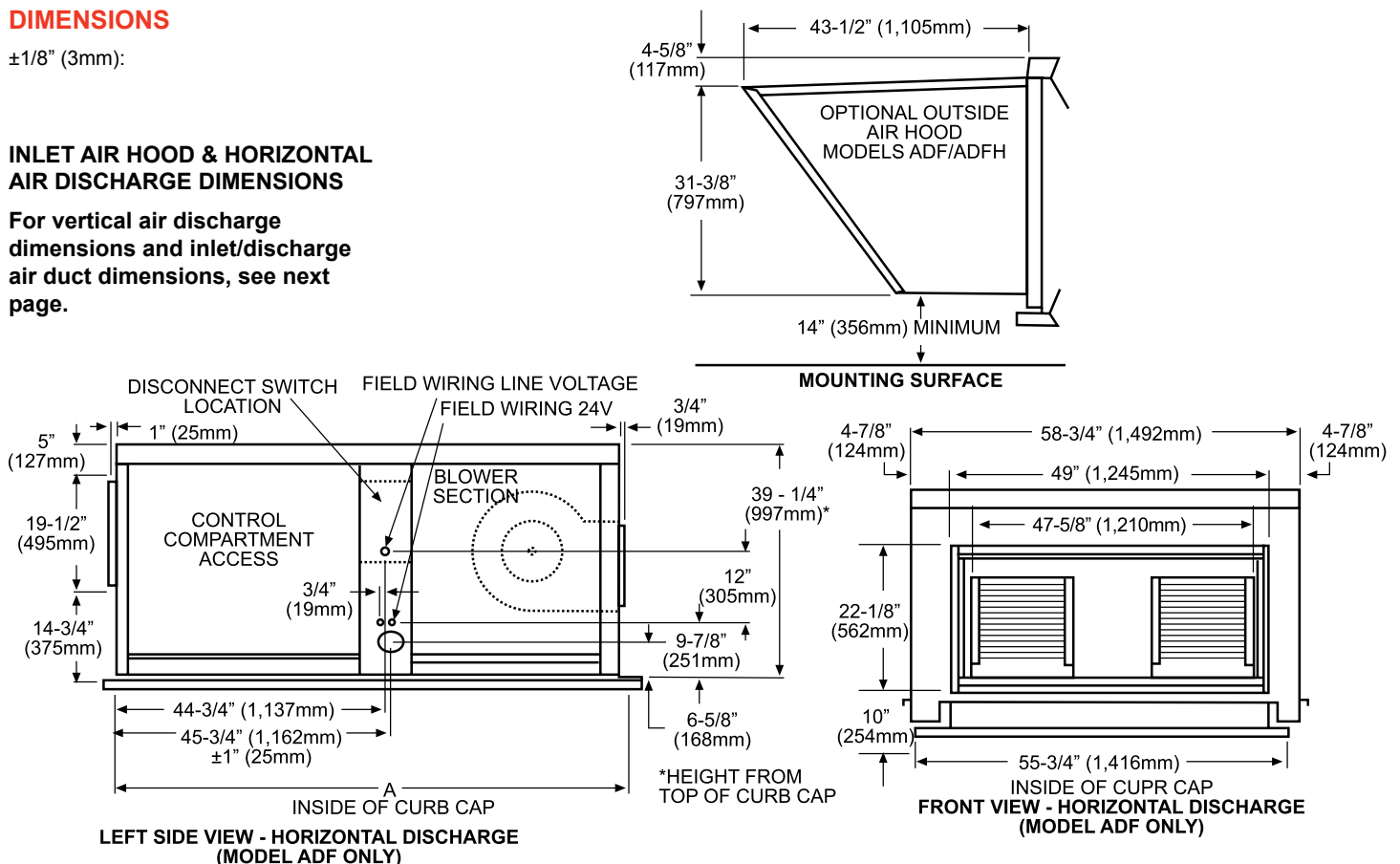
- Roof curb
- Outside screened air inlet hood
- Outside screened air inlet hood with integral 1" or 2" disposable, disposable pleated, or permanent aluminum filters
- Indoor filter cabinet with 1" or 2" disposable, disposable pleated, or permanent aluminum filters
- Evaporative cooling module (see Evaporative Cooling Catalog).
- Gas inlet pressure regulator (for applications where gas supply pressure exceeds 14" or 1/2 psig; regulator must be mounted external to the cabinet).
- Control console
- Disconnect switch
- Door switch (for door heater application requirements; order Option BX1).

## DIMENSIONS

±1/8" (3mm):

## INLET AIR HOOD & HORIZONTAL AIR DISCHARGE DIMENSIONS

**For vertical air discharge dimensions and inlet/discharge air duct dimensions, see next page.**



### INDOOR/OUTDOOR DIRECT-FIRED GAS HEATING/MAKEUP AIR SYSTEM

### FOR INDUSTRIAL & COMMERCIAL APPLICATIONS (cont'd)

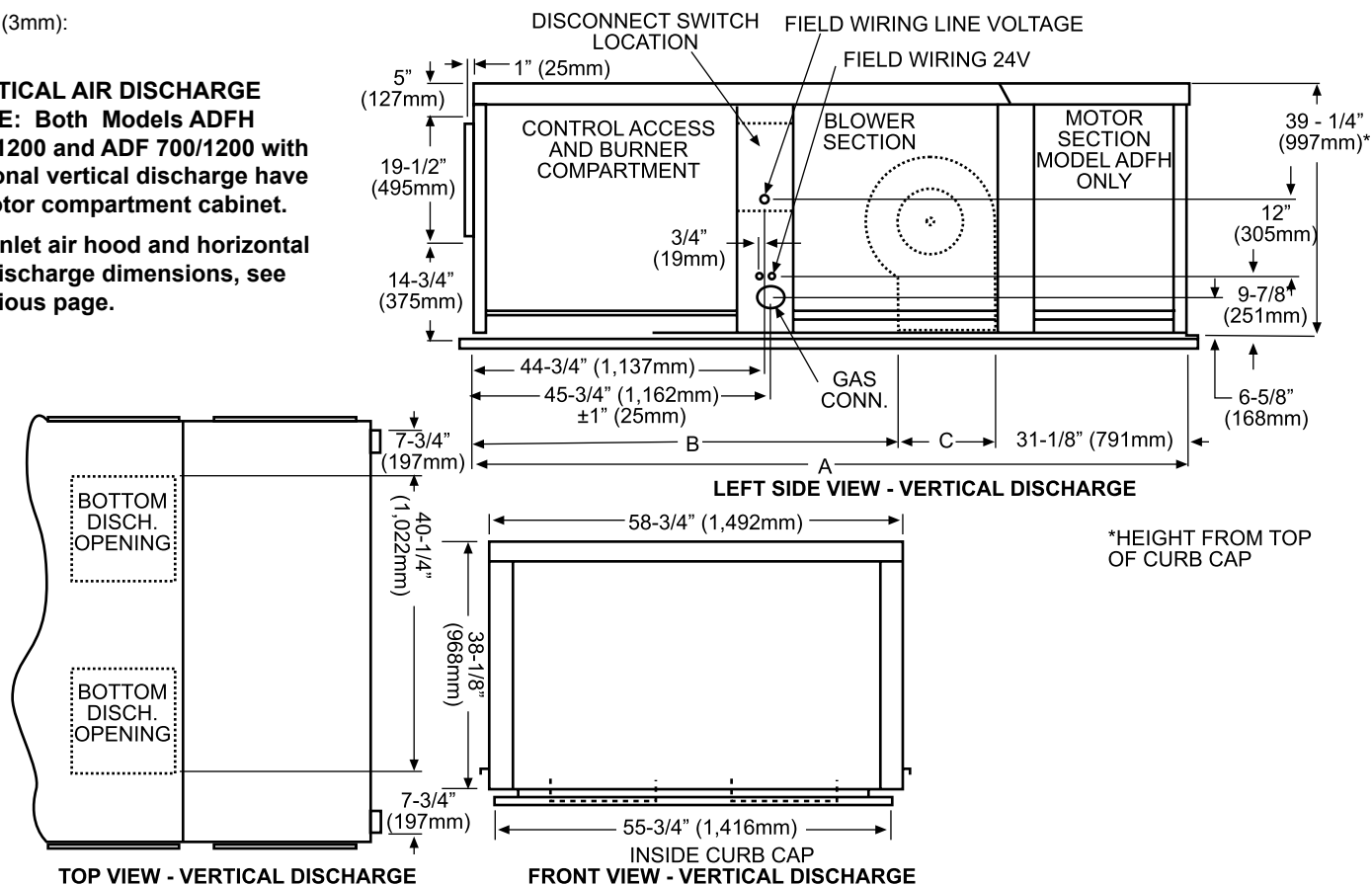
#### DIMENSIONS (cont'd)

±1/8" (3mm):

#### VERTICAL AIR DISCHARGE

**NOTE:** Both Models ADFH 700/1200 and ADF 700/1200 with optional vertical discharge have a motor compartment cabinet.

For inlet air hood and horizontal air discharge dimensions, see previous page.



Inlet Air Opening Dimensions (Horizontal)							
Model			in		mm		
ADF/ADFH 700			19 1/2 x 47 5/8		495 x 1,210		
ADF/ADFH 1200			19 1/2 x 47 5/8		495 x 1,210		
DISCHARGE		HORIZONTAL		VERTICAL			
Models		ADF		ADF/ADFH			
Size		700/1200		700		1200	
		in	mm	in	mm	in	mm
A		92 1/8	2,340	117	2,972	117	2,972
B		-	-	72 1/8	1,832	69 7/8	1,775
C		-	-	13 3/4	349	16	406

DISCHARGE DUCT OPENINGS (with and without discharge dampers)		
Model	Horizontal	
	in	mm
ADF 700/1200	48 15/16 x 22 1/8	1,243 x 562
Models	Vertical	
	in	mm
ADF 700/1200	C x 40 5/16	C x 1,024
ADFH 700/1200	C x 40 5/16	C x 1,024

**NOTE:** Motor for optional dampers with horizontal discharge is externally mounted on the control side of the damper frame. Horizontal damper frame extends 6 5/8" beyond heater duct connection.

#### FILTER RACK LOCATION NOTE:

- On outdoor installations, filter rack is part of outside air hood.
- On indoor installations, filter rack is a separate cabinet (see page 40).

System Pressure Drop (inches w.c.)														
Size	CFM *	Filters **						Evaporative Cooler		Screened Outside Air Hood	Discharge Damper ***		External Static	Total Static
		Disposable		Permanent		Pleated		Media	Catch Pad		H	V		
		1"	2"	1"	2"	1"	2"							
300	2000	0.040	0.090	0.060	0.100	0.130	0.110	0.120	0.077	0.19	0.060	0.060		
	3000	0.090	0.203	0.135	0.225	0.293	0.248	0.280	0.173	0.43	0.090	0.090		
	4000	0.160	0.360	0.240	0.400	0.520	0.440	0.520	0.307	0.77	0.120	0.120		
	4500	0.203	0.456	0.304	0.506	0.658	0.557	0.640	0.389	0.97	0.135	0.135		
	5000	0.250	0.563	0.375	0.625	0.813	0.688	0.800	0.480	1.20	0.150	0.150		
	6000	N/A	N/A	0.720	0.900	1.170	0.999	0.108	0.690	1.59	0.180	0.180		
500	2000	0.030	0.040	0.050	0.060	0.060	0.050	0.060	0.039	0.08	0.090	0.090		
	3000	0.068	0.090	0.113	0.135	0.135	0.113	0.140	0.088	0.19	0.135	0.135		
	4000	0.120	0.160	0.200	0.240	0.240	0.200	0.260	0.157	0.34	0.180	0.180		
	5000	0.188	0.250	0.313	0.375	0.375	0.313	0.400	0.245	0.53	0.225	0.225		
	5500	0.227	0.303	0.378	0.454	0.454	0.378	0.500	0.296	0.65	0.248	0.248		
	6000	0.270	0.360	0.450	0.540	0.540	0.450	0.580	0.353	0.77	0.270	0.270		
	6500	0.317	0.423	0.529	0.634	0.634	0.634	0.680	0.414	0.90	0.293	0.293		
	7000	0.368	0.490	0.613	0.735	0.735	0.613	0.740	0.480	0.99	0.315	0.315		
	7300	0.400	0.533	0.666	0.799	0.799	0.666	0.800	0.522	1.08	0.329	0.329		
700	3000	0.020	0.040	0.035	0.050	0.055	0.035	0.020	0.013	0.06	0.005	0.023		
	4000	0.036	0.071	0.062	0.089	0.098	0.062	0.040	0.024	0.10	0.006	0.030		
	5000	0.056	0.111	0.097	0.139	0.153	0.097	0.060	0.037	0.15	0.008	0.038		
	6000	0.080	0.160	0.140	0.200	0.220	0.140	0.080	0.053	0.23	0.009	0.045		
	7000	0.109	0.218	0.191	0.272	0.299	0.191	0.100	0.073	0.31	0.011	0.053		
	8000	0.142	0.284	0.249	0.356	0.391	0.249	0.140	0.095	0.40	0.012	0.060		
	9000	0.180	0.360	0.315	0.450	0.495	0.315	0.180	0.120	0.50	0.014	0.068		
	10000	N/A	N/A	0.389	0.556	0.611	0.389	0.220	0.148	0.62	0.018	0.075		
1200	3000	0.020	0.040	0.035	0.050	0.055	0.035	0.020	0.013	0.06	0.005	0.038		
	4000	0.036	0.071	0.062	0.089	0.098	0.062	0.040	0.024	0.10	0.006	0.050		
	5000	0.056	0.111	0.097	0.139	0.153	0.097	0.060	0.037	0.15	0.008	0.063		
	6000	0.080	0.160	0.140	0.200	0.220	0.140	0.080	0.053	0.23	0.009	0.075		
	7000	0.109	0.218	0.191	0.272	0.299	0.191	0.100	0.073	0.31	0.011	0.088		
	8000	0.142	0.284	0.249	0.356	0.391	0.249	0.140	0.095	0.40	0.012	0.100		
	9000	0.180	0.360	0.315	0.450	0.495	0.315	0.180	0.120	0.50	0.014	0.113		
	10000	N/A	N/A	0.389	0.556	0.611	0.389	0.220	0.148	0.62	0.015	0.125		
	11000	N/A	N/A	0.471	0.672	0.739	0.471	0.260	0.179	0.76	0.017	0.138		
	12000	N/A	N/A	0.560	0.800	0.880	0.560	0.300	0.213	0.90	0.018	0.150		
	13000	N/A	N/A	0.657	0.939	N/A	N/A	0.360	0.250	1.05	0.020	0.163		
	14000	N/A	N/A	0.762	1.089	N/A	N/A	0.420	0.290	1.22	0.022	0.175		
	15000	N/A	N/A	0.875	1.250	N/A	N/A	0.500	0.333	1.34	0.023	0.188		
	15500	N/A	N/A	0.934	1.335	N/A	N/A	0.540	0.356	1.41	0.024	0.194		

\* Maximum CFM for Model ADF 300 is 5000; maximum CFM for Model ADF 500 is 5500. Maximum CFM for Model ADFH 300 is 6000; maximum CFM for Model ADFH 500 is 7300.

\*\* Indoor Filter Cabinet - Use the pressure drop in the column for the type of filters. Pressure drops are for clean filters. Outside Air Hood with Filters - Use both the pressure drop in the column for the type of filters and the pressure drop in the screened outside air hood column. Pressure drops are for clean filters.

\*\*\* H = Horizontal Discharge; V = Vertical Discharge (Model ADFH is available in vertical discharge only. Models ADF 700/1200 with optional vertical discharge require an additional motor compartment similar to Model ADFH.)

N/A = Not Applicable

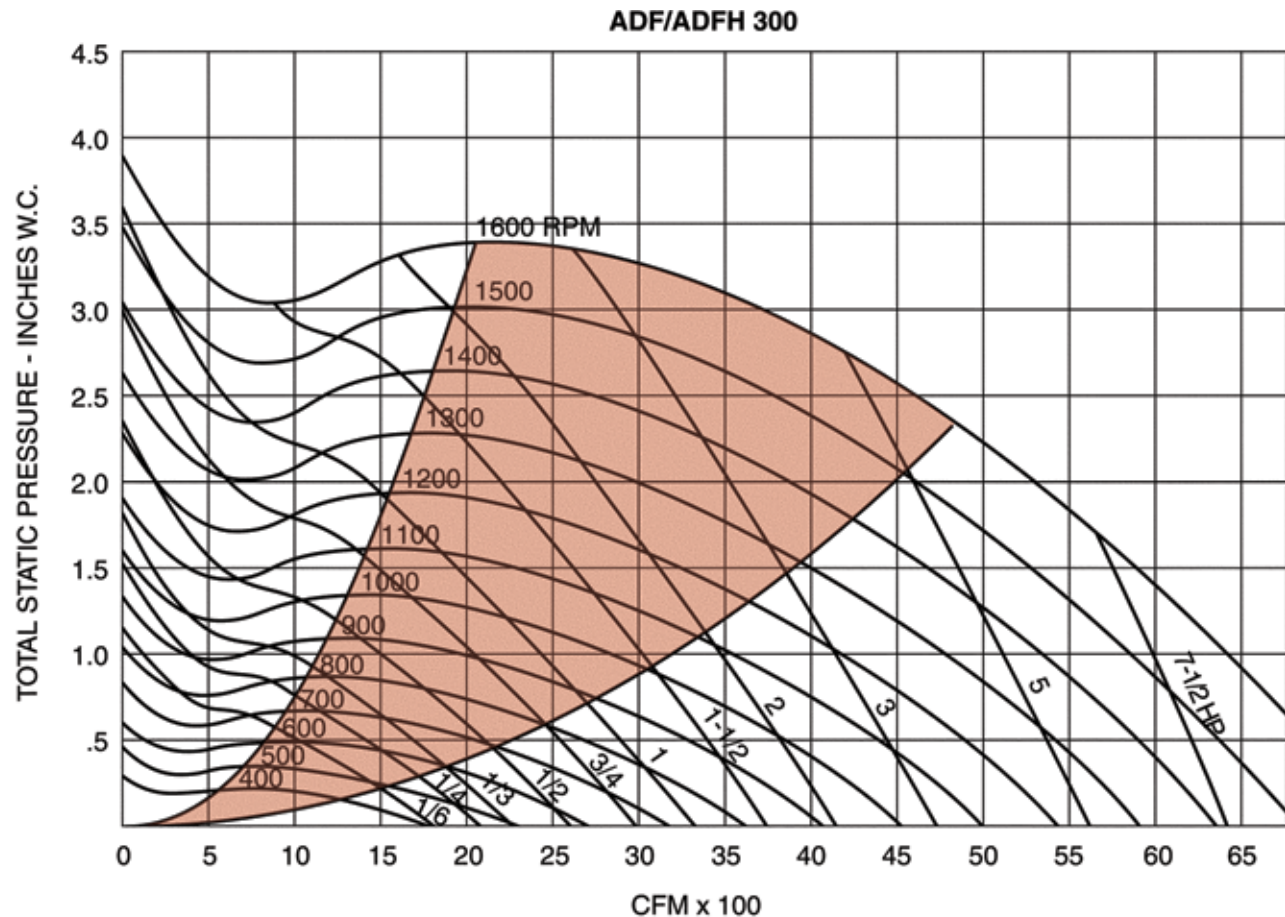
## MODEL ADF/ADFH BLOWER CHART RPM/BHP TABLE AND BLOWER CURVE

Apply RPM/BHP Table and Blower Curve using AIR PRESSURE DROP TABLE. Blower information is tested under standard air conditions to AMCA 210 and ASHRAE 51. Any loss due to the drive is not considered in the table or curve. A burner pressure drop of .55" w.c. is included in the table; add .55 w.c. to the blower curve.

Model	HP Range	CFM Range	Discharge Configuration
ADF 300	1/2 - 5	2000 - 5000	Horizontal or Vertical
ADFH 300	1/2 - 7 1/2	2000 - 6000	Vertical only

RPM/BHP TABLE AND BLOWER CURVE - Models ADF/ADFH 300 with a Single 12 x 12 Blower  
Table Key: Value with shaded background apply to ADFH only.

Model	CFM	Outlet Velocity FPM	Total Adjusted Static Pressure (w.c.) - from the Pressure Drop Chart										
			0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
ADF / ADFH	2000	1064	711/.47	817/.60	913/.74	1002/.88	1087/1.04	1167/1.20	1243/1.36	1315/1.54	1384/1.71	1450/1.89	1512/2.08
	2500	1330	781/.74	878/.90	964/1.06	1046/1.23	1122/1.40	1196/1.58	1266/1.76	1334/1.95	1399/2.15	1463/2.35	1523/2.56
	3000	1596	858/1.11	947/1.31	1020/1.49	1104/1.69	1174/1.80	1241/2.08	1307/2.28	1360/2.49	1430/2.71	1489/2.93	1547/3.15
	3500	1862	940/1.61	1024/1.83	1100/2.05	1170/2.28	1236/2.50	1299/2.72	1369/2.95	1418/3.18	1475/3.41	1530/3.85	1585/3.90
	4000	2128	1026/2.24	1104/2.50	1176/2.75	1243/3.01	1305/3.26	1365/3.51	1423/3.77	1478/4.03	1531/4.23	1582/4.54	-
	4500	2394	1117/3.03	1187/3.32	1255/3.62	1319/3.91	1379/4.19	1436/4.48	1490/4.76	1543/5.05	1594/5.33	-	-
	5000	2560	1212/4.01	1276/4.33	1338/4.65	1398/4.98	1456/5.30	1510/5.62	1563/5.94	-	-	-	-
ADFH	6000	3191	1359/6.26	1408/6.60	-	-	-	-	-	-	-	-	-



Curve Key:  = Efficient Operating Range

**IMPORTANT NOTE:** Blower Curve only - ADD .55" w.c. for burner pressure drop.

**BLOWER NOTE:** Models ADF/ADFH with a 1/2-5 HP motor have Class I blower; Models ADFH with a 7-1/2 HP motor has a Class II blower. Optional Class II blower is available with 1/2-5 HP motor. A Class I blower is a standard blower with permanently lubricated cartridge ball bearings. A Class II blower is a heavy duty blower with pillowblock bearings. (The pillowblock bearings have a grease fitting and should be lubricated twice a year with a high temperature, moisture-resistant grease.) Units with a 7-1/2 HP motor have a heavy duty triangular bearing support.

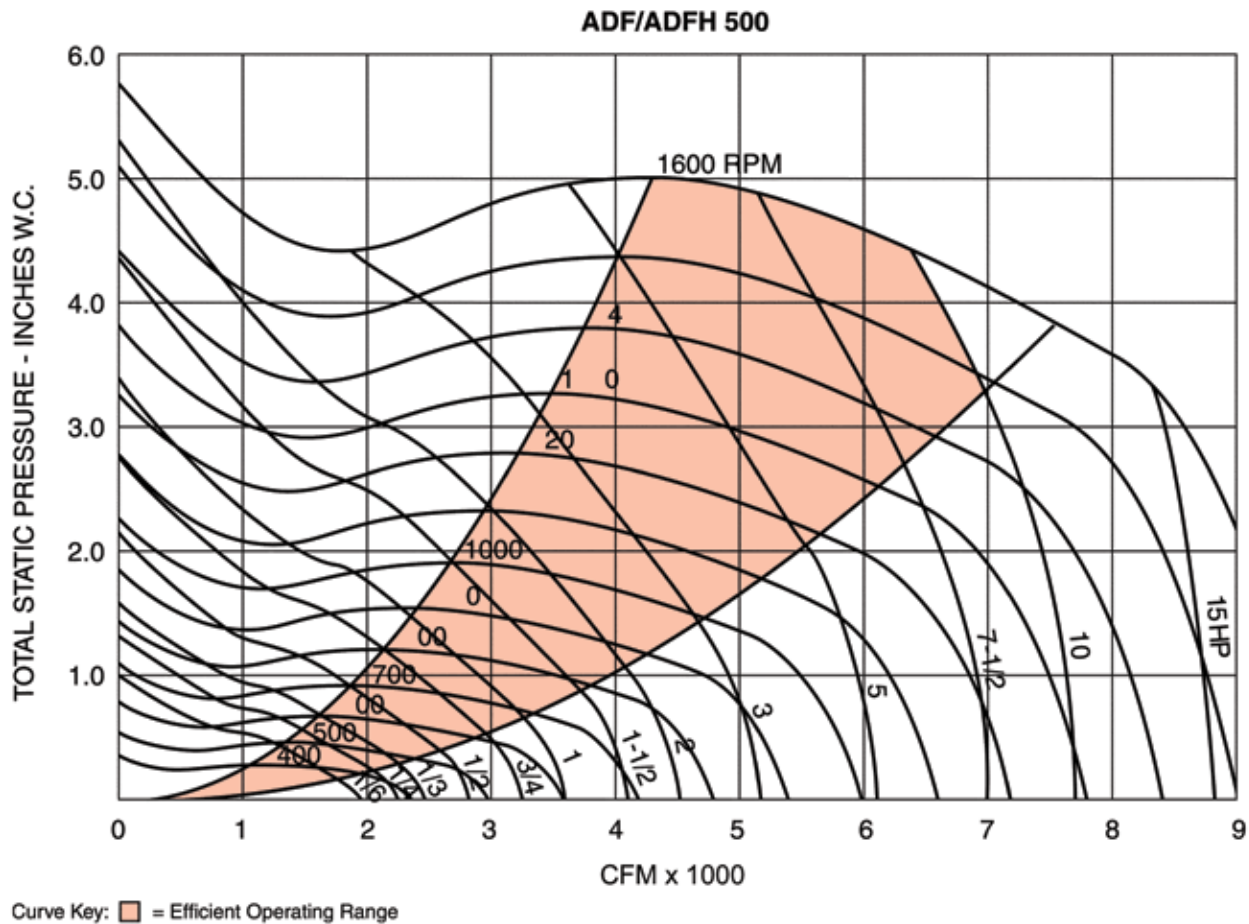
## MODEL ADF/ADFH 500 BLOWER CHART RPM/BHP TABLE AND BLOWER CURVE

Apply RPM/BHP Chart and Blower Curve using AIR PRESSURE DROP TABLE. Blower information is tested under standard air conditions to AMCA 210 and ASHRAE 51. Any loss due to the drive is not considered in the table or curve. A burner pressure drop of .55" w.c. is included in the table; add .55" w.c. to the blower curve.

Model	HP Range	CFM Range	Discharge Configuration
ADF 500	1/2 - 5	2000 - 5500	Horizontal or Vertical
ADFH 500	1/2 - 10	2000 - 7300	Vertical only

RPM/BHP TABLE AND BLOWER CURVE - Models ADF/ADFH 500 with a Single 15 x 11 Blower  
Table Key: Value with shaded background apply to ADFH only.

Model	CFM	Outlet Velocity FPM	Total Adjusted Static Pressure (w.c.) - from the Pressure Drop Chart										
			0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
ADF/ADFH	2000	1225	529/.34	624/.45	712/.57	-	-	-	-	-	-	-	-
	2500	1543	561/.51	651/.65	729/.79	802/.93	873/1.08	942/1.24	-	-	-	-	-
	3000	1862	599/.75	684/.91	759/1.07	826/1.25	889/1.40	950/1.57	1011/1.75	1069/1.93	1125/2.15	-	-
	3500	2160	655/1.09	719/1.23	791/1.42	858/1.62	918/1.80	975/1.98	1029/2.19	1082/2.38	1133/2.59	1184/2.80	1235/3.01
	4000	2469	724/1.55	768/1.67	827/1.86	891/2.07	951/2.30	1006/2.51	1057/2.73	1107/2.94	1155/3.16	1201/3.33	1247/3.61
	4500	2772	798/2.16	831/2.27	874/2.42	927/2.63	982/2.87	1039/3.12	1085/3.37	1138/3.61	1184/3.85	1229/4.10	1271/4.34
	5000	3096	875/2.92	901/3.02	933/3.15	973/3.33	1021/3.55	1072/3.82	1124/4.10	1171/4.30	1216/4.65	1260/4.92	1302/5.20
ADFH Only	5500	3395	954/3.84	976/3.94	1001/4.07	1032/4.22	1069/4.42	1112/4.67	1157/4.95	1204/5.25	1249/5.55	1292/5.86	1334/6.16
	6000	3704	1034/4.96	1053/5.05	1074/5.17	1098/5.32	1127/5.49	1161/5.71	1195/5.97	1241/6.27	1284/6.59	1326/6.92	1366/7.25
	6500	4012	1115/6.27	1131/6.37	1149/6.48	1170/6.62	1193/6.78	1220/6.98	1251/7.21	1285/7.48	1322/7.78	1361/8.11	1400/8.46
	7000	4321	1197/7.80	1211/7.90	1227/8.01	1244/8.15	1254/8.30	1280/8.48	1311/8.69	1339/8.93	-	-	-
	7300	4506	1246/8.83	1259/8.93	-	-	-	-	-	-	-	-	-



**IMPORTANT NOTE:** Blower Curve only - ADD .55" w.c. for burner pressure drop.

**BLOWER NOTE:** Models ADF/ADFH with a 1/2-5 HP motor have Class I blower; Models ADFH with a 7-1/2 - 10 HP motor has a Class II blower. Optional Class II blower is available with 1/2-5 HP motor. A Class I blower is a standard blower with permanently lubricated cartridge ball bearings. A Class II blower is a heavy duty blower with pillowblock bearings. (The pillowblock bearings have a grease fitting and should be lubricated twice a year with a high temperature, moisture-resistant grease.) Units with a 7-1/2 or 10 HP motor have a heavy duty triangular bearing support.

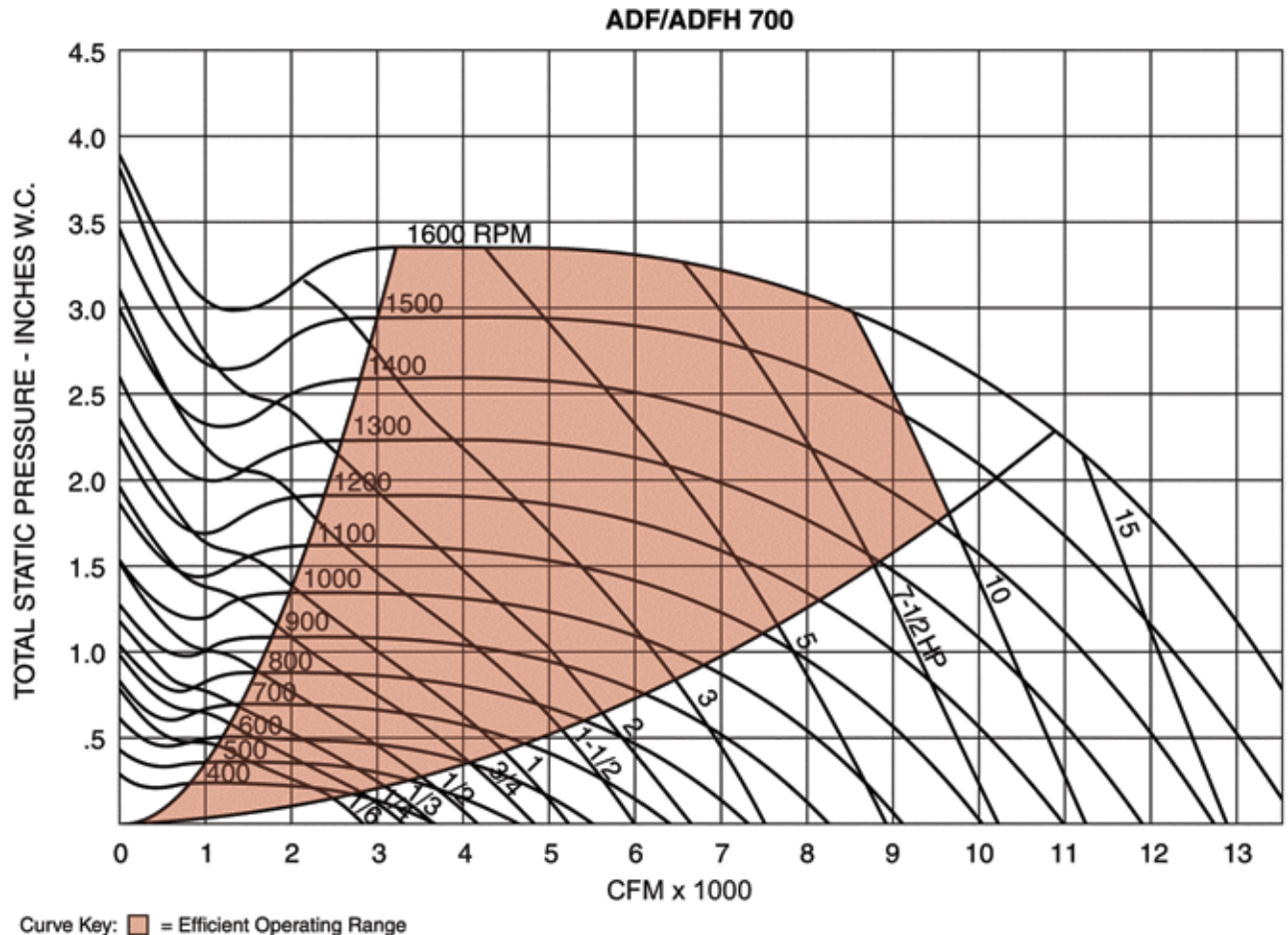
Apply RPM/BHP Chart and Blower Curve using AIR PRESSURE DROP TABLE. Blower information is tested under standard air conditions to AMCA 210 and ASHRAE 51. Any loss due to the drive is not considered in the table or curve. A burner pressure drop of .55" w.c. is included in the table; add .55" w.c. to the blower curve.

Model	HP Range	CFM Range	Discharge Configuration
ADF 700	1-10	3000 - 10000	Horizontal or Vertical*
ADFH 700	1-10	3000 - 10000	Vertical only

\* Optional vertical (down) discharge on Model ADF 700 requires an extra motor cabinet and changes the appearance to the same as a Model ADFH.

### RPM/BHP TABLE AND BLOWER CURVE - Models ADF/ADFH 700 with a Dual 12 x 12 Blowers

Model	CFM	Outlet Velocity FPM	Total Adjusted Static Pressure (w.c.) - from the Pressure Drop Chart										
			0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
ADF/ ADFH	3000	544	636/1.54	764/1.98	877/2.21	977/2.42	1070/2.61	1155/2.78	1235/2.93	1310/3.07	1381/3.19	1448/3.29	-
	3500	635	654/1.69	774/2.14	882/2.37	981/2.57	1072/2.76	1156/2.92	1236/3.07	1310/3.19	1381/3.30	1448/3.40	1513/3.49
	4000	726	678/1.87	790/2.31	893/2.54	988/2.74	1077/2.93	1159/3.08	1237/3.22	1312/3.33	1382/3.43	1449/3.53	1513/3.62
	5000	907	733/2.38	835/2.82	926/3.05	1013/3.25	1096/3.41	1174/3.56	1249/3.69	1319/3.80	1388/3.90	1453/4.00	1516/4.09
	6000	1089	815/2.81	897/3.25	977/3.48	1056/3.63	1130/3.77	1202/3.89	1271/4.00	1339/4.10	1404/4.20	1466/4.29	1527/4.38
	7000	1270	899/3.29	971/3.73	1041/3.96	1109/4.10	1177/4.24	1243/4.35	1307/4.45	1370/4.55	1431/4.64	1490/4.73	1547/4.82
	7500	1361	944/3.68	1011/4.12	1076/4.35	1142/4.49	1206/4.60	1268/4.70	1330/4.79	1390/4.88	1449/4.97	1506/5.06	1562/5.15
	8000	1452	989/4.35	1062/4.79	1114/5.02	1176/5.16	1237/5.26	1297/5.35	1355/5.44	1412/5.53	1469/5.62	1525/5.71	-
	8500	1543	1036/5.11	1095/5.55	1154/5.78	1212/5.92	1270/6.05	1326/6.15	1382/6.24	1438/6.33	1492/6.42	-	-
	9000	1633	1083/5.95	1139/6.39	1195/6.62	1250/6.76	1305/6.85	1359/6.94	1413/7.03	-	-	-	-
	9500	1724	1131/6.88	1187/7.32	1237/7.55	1289/7.69	1342/7.78	-	-	-	-	-	-
	10000	1815	1180/7.91	1230/8.35	1280/8.58	-	-	-	-	-	-	-	-



**IMPORTANT NOTE:** Blower Curve only - ADD .55" w.c. for burner pressure drop.

**BLOWER NOTE:** Models ADF/ADFH with a 1/2-5 HP motor have Class I blower; Models ADF/ADFH with a 7-1/2 -10HP motor have Class II blowers. Optional Class II blowers are available with 1/2-5 HP motor. A Class I blower is a standard blower with permanently lubricated cartridge ball bearings. A Class II blower is a heavy duty blower with pillowblock bearings. (The pillowblock bearings have a grease fitting and should be lubricated twice a year with a high temperature, moisture-resistant grease.) Units with a 7-1/2-10 HP motor have a heavy duty triangular bearing support.

### BLOWER CHART RPM/BHP TABLE AND BLOWER CURVE

Apply RPM/BHP Chart and Blower Curve using AIR PRESSURE DROP TABLE. Blower information is tested under standard air conditions to AMCA 210 and ASHRAE 51. Any loss due to the drive is not considered in the table or curve. A burner pressure drop of .55" w.c. is included in the table; add .55" w.c. to the blower curve.

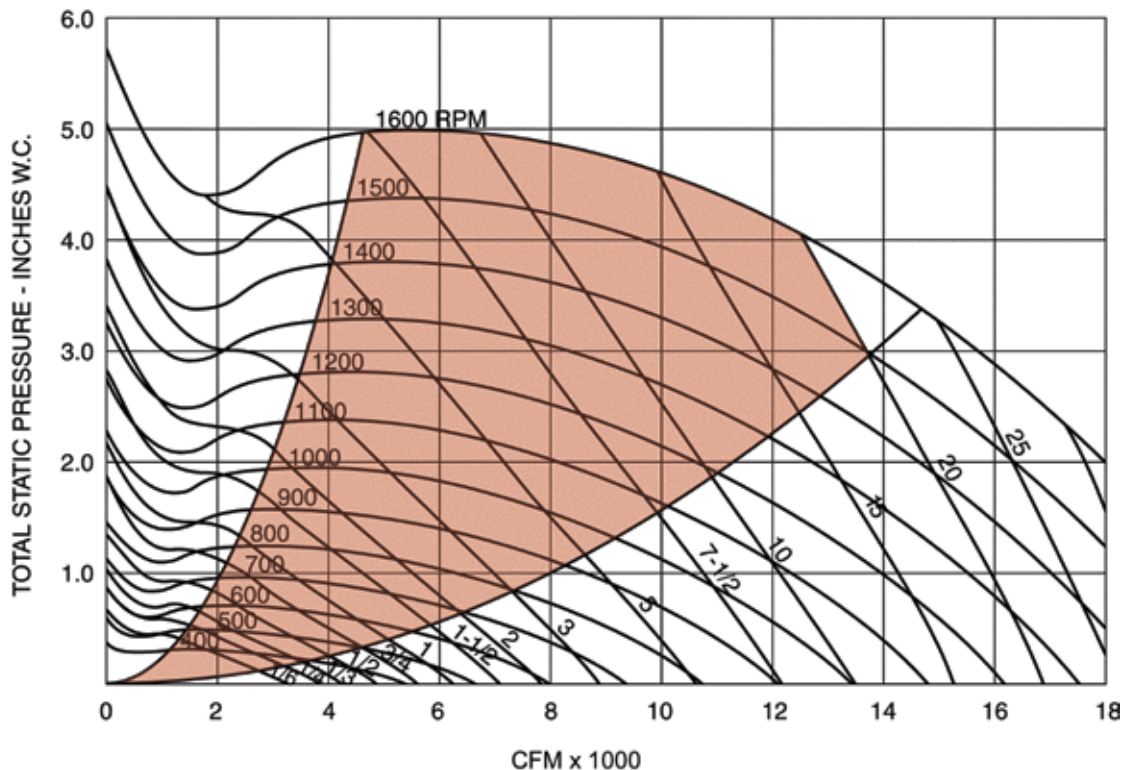
Model	HP Range	CFM Range	Discharge Configuration
ADF 1200	1-20	3000 - 15500	Horizontal or Vertical *
ADFH 1200	1-20	3000 - 15500	Vertical only

\* Optional vertical (down) discharge on Model ADF 1200 requires an extra motor cabinet and changes the appearance to the same as Model ADFH.

#### RPM/BHP TABLE AND BLOWER CURVE - Models ADF/ADFH 1200 with a Dual 15 x 11 Blowers

Model	CFM	Outlet Velocity FPM	Total Adjusted Static Pressure (w.c.) - from the Pressure Drop Chart										
			0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
ADF/ ADFH	3000	544	518/.48	624/.68	717/.90	801/1.13	877/1.37	948/1.63	1014/1.91	-	-	-	-
	3500	635	532/.60	632/.82	721/1.06	802/1.31	877/1.57	947/1.85	1013/2.14	1074/2.44	1133/2.74	1188/3.06	-
	4000	726	548/.74	643/.99	728/1.24	807/1.52	880/1.80	948/2.08	1013/2.39	1071/2.71	1132/3.04	1187/3.37	1241/3.72
	5000	907	588/1.10	675/1.41	753/1.71	826/2.03	894/2.35	958/2.68	1020/3.02	1079/3.38	1135/3.74	1189/4.11	1241/4.49
	6000	1089	635/1.59	715/1.95	788/2.32	855/2.68	919/3.05	979/3.43	1037/3.81	1092/4.20	1146/4.60	1198/5.01	1248/5.43
	7000	1270	686/2.22	760/2.64	820/3.07	892/3.49	952/3.91	1009/4.34	1064/4.77	1116/5.21	1166/5.65	1215/6.10	1263/6.56
	8000	1452	741/3.01	810/3.50	874/3.98	934/4.47	990/4.95	1044/5.43	1098/5.92	1146/6.41	1194/6.90	1240/7.39	1286/7.90
	9000	1633	799/4.00	863/4.54	923/5.09	980/5.63	1034/6.18	1085/6.72	1134/7.27	1181/7.81	1227/8.36	1272/8.91	1315/9.46
	10000	1815	859/5.21	919/5.81	975/6.41	1029/7.02	1080/7.62	1130/8.24	1176/8.84	1222/9.45	1266/10.05	1308/10.65	1350/11.26
	11000	1996	923/6.68	977/7.31	1030/7.97	1080/8.63	1129/9.30	1188/9.98	1222/10.65	1265/11.31	1307/11.98	1348/12.63	1389/13.32
	12000	2178	988/8.42	1038/9.09	1087/9.80	1135/10.52	1181/11.25	1227/11.99	1269/12.71	1311/13.45	1352/14.18	1392/14.91	1430/15.62
	12500	2269	1021/9.41	1069/10.09	1116/10.82	1163/11.58	1208/12.33	1252/13.10	1294/13.85	1336/14.60	1375/15.36	1414/16.13	1451/16.88
	13000	2359	1054/10.46	1100/11.18	1146/11.92	1191/12.60	1235/13.48	1278/14.28	1320/15.07	1359/15.85	1399/16.85	-	-
	13500	2450	1088/11.61	1132/12.33	1176/13.10	1219/13.89	1262/14.70	1305/15.53	1345/16.35	1384/17.17	1423/18.00	-	-
	14000	2541	1122/12.83	1164/13.59	1206/14.36	1249/15.18	1291/16.03	1331/16.86	1372/17.72	-	-	-	-
	14500	2632	1156/14.15	1197/14.91	1238/15.73	1280/16.57	1320/17.42	-	-	-	-	-	-
	15000	2722	1191/15.57	1229/16.34	1270/17.17	-	-	-	-	-	-	-	-
	15500	2813	1225/17.08	1263/17.86	-	-	-	-	-	-	-	-	-

ADF/ADFH 1200



**BLOWER NOTE:** Models ADF/ADFH with a 1/2-5 HP motor have Class I blowers; Models ADF/ADFH with a 7-1/2-20 HP motor have Class II blowers. Optional Class II blowers are available with 1/2-5 HP motor. A Class I blower is a standard blower with permanently lubricated cartridge ball bearings. A Class II blower is a heavy duty blower with pillowblock bearings. (The pillowblock bearings have a grease fitting and should be lubricated twice a year with a high temperature, moisture-resistant grease.) Units with a 7-1/2-10 HP motor have a heavy duty triangular bearing support; units with a 15-20 HP motor have a heavy duty angle iron bearing support.

**IMPORTANT NOTE:** Blower Curve only - ADD .55" w.c. for burner pressure drop.

### Gas Input Rate vs. Temperature Rise and CFM

THESE TABLES ARE GENERATED AT 29.92" HG & 70 DEGREE DISCHARGE AIR TEMPERATURE USING THE FORMULA:  
(CFM x TEMP. RISE x 14.382 x .074856) / .92

FOR APPLICATIONS OTHER THAN AT SEA LEVEL OR 70°F DISCHARGE AIR USE:

INPUT RATE = (DISCHARGE CFM x TEMP. RISE x 14.382 x DISCHARGE DENSITY) / .92

WHERE: DISCHARGE CFM = ACTUAL HEATED CFM DELIVERED TO SPACE

DISCHARGE DENSITY = [(BAROMETRIC PRESS / (460 + DISCHARGE TEMP))] x 1.326

NOTE: Double lines indicate a change in burner size. See Burner Size Selection Table on next page.

### ADF-300 Horizontal and Vertical (down) Discharge

CFM	MAX TSP	20°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F
2000	2.50	46,808	70,212	93,616	117,019	140,423	163,827	187,231	210,635	234,039	257,443	280,847	304,251
2500	2.75	58,510	87,765	117,019	146,274	175,529	204,784	234,039	263,294	292,549	321,804	351,058	380,313
3000	2.50	70,212	105,318	140,423	175,529	210,635	245,741	280,847	315,953	351,058	386,164	421,270	456,376
3500	2.50	81,914	122,870	163,827	204,784	245,741	286,698	327,654	368,611	409,568	450,525	491,482	-
4000	2.25	93,616	140,423	187,231	234,039	280,847	327,654	374,462	421,270	468,078	-	-	-
4500	1.50	105,318	157,976	210,635	263,294	315,953	368,611	421,270	473,929	-	-	-	-
5000	0.75	117,019	175,529	234,039	292,549	351,058	409,568	468,078	-	-	-	-	-

### ADFH-300 Vertical (down) Discharge Only

CFM	MAX TSP	20°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F
2000	2.50	46,808	70,212	93,616	117,019	140,423	163,827	187,231	210,635	234,039	257,443	280,847	304,251
2500	2.75	58,510	87,765	117,019	146,274	175,529	204,784	234,039	263,294	292,549	321,804	351,058	380,313
3000	2.50	70,212	105,318	140,423	175,529	210,635	245,741	280,847	315,953	351,058	386,164	421,270	456,376
3500	2.50	81,914	122,870	163,827	204,784	245,741	286,698	327,654	368,611	409,568	450,525	491,482	-
4000	2.25	93,616	140,423	187,231	234,039	280,847	327,654	374,462	421,270	468,078	-	-	-
4500	2.00	105,318	157,976	210,635	263,294	315,953	368,611	421,270	473,929	-	-	-	-
5000	1.50	117,019	175,529	234,039	292,549	351,058	409,568	468,078	-	-	-	-	-
5500	1.00	128,721	193,082	257,443	321,804	386,164	450,525	-	-	-	-	-	-
6000	0.25	140,423	210,635	280,847	351,058	421,270	491,482	-	-	-	-	-	-

### ADF-500 Horizontal and Vertical (down) Discharge

CFM	MAX TSP	20°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F
2000	0.50	46,808	70,212	93,616	117,019	140,423	163,827	187,231	210,635	234,039	257,443	280,847	304,251
2500	1.25	58,510	87,765	117,019	146,274	175,529	204,784	234,039	263,294	292,549	321,804	351,058	380,313
3000	2.00	70,212	105,318	140,423	175,529	210,635	245,741	280,847	315,953	351,058	386,164	421,270	456,376
3500	2.75	81,914	122,870	163,827	204,784	245,741	286,698	327,654	368,611	409,568	450,525	491,482	532,439
4000	3.75	93,616	140,423	187,231	234,039	280,847	327,654	374,462	421,270	468,078	514,886	561,693	608,501
4500	3.00	105,318	157,976	210,635	263,294	315,953	368,611	421,270	473,929	526,588	579,246	631,905	684,564
5000	2.50	117,019	175,529	234,039	292,549	351,058	409,568	468,078	526,588	585,097	643,607	702,117	-
5500	1.50	128,721	193,082	257,443	321,804	386,164	450,525	514,886	579,246	643,607	707,968	-	-

### ADFH-500 Vertical (down) Discharge Only

CFM	MAX TSP	20°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F
2000	0.50	46,808	70,212	93,616	117,019	140,423	163,827	187,231	210,635	234,039	257,443	280,847	304,251
2500	1.25	58,510	87,765	117,019	146,274	175,529	204,784	234,039	263,294	292,549	321,804	351,058	380,313
3000	2.00	70,212	105,318	140,423	175,529	210,635	245,741	280,847	315,953	351,058	386,164	421,270	456,376
3500	2.75	81,914	122,870	163,827	204,784	245,741	286,698	327,654	368,611	409,568	450,525	491,482	532,439
4000	4.00	93,616	140,423	187,231	234,039	280,847	327,654	374,462	421,270	468,078	514,886	561,693	608,501
4500	4.50	105,318	157,976	210,635	263,294	315,953	368,611	421,270	473,929	526,588	579,246	631,905	684,564
5000	4.25	117,019	175,529	234,039	292,549	351,058	409,568	468,078	526,588	585,397	643,607	702,117	-
5500	4.25	128,721	193,082	257,443	321,804	386,164	450,525	514,886	579,246	643,607	707,968	-	-
6000	4.00	140,423	210,635	280,847	351,058	421,270	491,482	561,693	631,905	702,117	-	-	-
6500	3.25	152,125	228,188	304,251	380,313	456,376	532,439	608,501	684,564	-	-	-	-
7000	1.75	163,827	245,741	327,654	409,568	491,482	573,395	655,309	737,223	-	-	-	-
7300	0.25	170,848	256,273	341,697	427,121	512,545	597,959	683,394	-	-	-	-	-

### Burner Size Selection Table

Use Burner Option	Size	For BTUH Above	But Below (BTUH)
BL1	6"	0	250,000
BL2	12"	250,001	500,000
BL3	18"	500,001	750,000
BL4	24"	750,001	1,000,000
BL5	30"	1,000,001	1,250,000

### ADF-700 and ADFH-700

CFM	MAX TSP	20°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F
3000	2.25	70,212	105,318	140,423	175,529	210,635	245,741	280,847	315,953	351,058	386,164	421,270	456,376
3500	2.75	81,914	122,870	163,827	204,784	245,741	286,698	327,654	368,611	409,568	450,525	491,482	532,439
4000	2.75	93,616	140,423	187,231	234,039	280,847	327,654	374,462	421,270	468,078	514,886	561,693	608,501
4500	2.75	105,318	157,976	210,635	263,294	315,953	368,611	421,270	473,929	526,588	579,246	631,905	684,564
5000	2.75	117,019	175,529	234,039	292,549	351,058	409,568	468,078	526,588	585,097	643,607	702,117	760,626
5500	2.75	128,721	193,082	257,443	321,804	386,164	450,525	514,886	579,246	643,607	707,968	772,328	836,689
6000	2.75	140,423	210,635	280,847	351,058	421,270	491,482	561,693	631,905	702,117	772,328	842,540	912,752
6500	2.75	152,125	228,188	304,251	380,313	456,376	532,439	608,501	684,564	760,626	836,689	912,752	988,814
7000	2.50	163,827	245,741	327,654	409,568	491,482	573,395	655,309	737,223	819,136	901,050	982,963	1,064,877
7500	2.50	175,529	263,294	351,058	438,823	526,588	614,352	702,117	789,881	877,646	965,411	1,053,175	1,140,940
8000	2.25	187,231	280,847	374,462	468,078	561,693	655,309	748,925	842,540	936,156	1,029,771	1,123,387	1,217,002
8500	2.00	198,933	298,400	397,866	497,333	596,799	696,266	795,732	895,199	994,665	1,094,132	1,193,598	-
9000	1.50	210,635	315,953	421,270	526,588	631,905	737,223	842,540	947,858	1,053,175	1,158,493	-	-
9500	1.00	222,337	333,505	444,674	555,842	667,011	778,179	889,348	1,000,516	1,111,685	1,222,853	-	-
10000	0.50	234,039	351,058	468,078	585,097	702,117	819,136	936,156	1,053,175	1,170,195	-	-	-

### ADF-1200 and ADFH-1200

CFM	MAX TSP	20°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F
3000	1.50	70,212	105,318	140,423	175,529	210,635	245,741	280,847	315,953	351,058	386,164	421,270	456,376
3500	2.25	81,914	122,870	163,827	204,784	245,741	286,698	327,654	368,611	409,568	450,525	491,482	532,439
4000	3.25	93,616	140,423	187,231	234,039	280,847	327,654	374,462	421,270	468,078	514,886	561,693	608,501
4500	4.25	105,318	157,976	210,635	263,294	315,953	368,611	421,270	473,929	526,588	579,246	631,905	684,564
5000	4.25	117,019	175,529	234,039	292,549	351,058	409,568	468,078	526,588	585,097	643,607	702,117	760,626
5500	4.25	128,721	193,082	257,443	321,804	386,164	450,525	514,886	579,246	643,607	707,968	772,328	836,689
6000	4.25	140,423	210,635	280,847	351,058	421,270	491,482	561,693	631,905	702,117	772,328	842,540	912,752
6500	4.25	152,125	228,188	304,251	380,313	456,376	532,439	608,501	684,564	760,626	836,689	912,752	988,814
7000	4.25	163,827	245,741	327,654	409,568	491,482	573,395	655,309	737,223	819,136	901,050	982,963	1,064,877
7500	4.25	175,529	263,294	351,058	438,823	526,588	614,352	702,117	789,881	877,646	965,411	1,053,175	1,140,940
8000	4.25	187,231	280,847	374,462	468,078	561,693	655,309	748,925	842,540	936,156	1,029,771	1,123,387	1,217,002
8500	4.25	198,933	298,400	397,866	497,333	596,799	696,266	795,732	895,199	994,665	1,094,132	1,193,598	-
9000	4.00	210,635	315,953	421,270	526,588	631,905	737,223	842,540	947,858	1,053,175	1,158,493	-	-
9500	4.00	222,337	333,505	444,647	555,842	667,011	778,179	889,348	1,000,516	1,111,685	1,222,853	-	-
10000	4.00	234,039	351,058	468,078	585,097	702,117	819,136	936,156	1,053,175	1,170,195	-	-	-
10500	3.75	245,741	368,611	491,482	614,352	737,223	860,093	982,963	1,105,834	1,228,704	-	-	-
11000	3.75	257,443	386,164	514,886	643,607	772,328	901,050	1,029,771	1,158,493	-	-	-	-
11500	3.75	269,145	403,717	538,289	672,862	807,434	942,007	1,076,579	1,211,151	-	-	-	-
12000	3.25	280,847	421,270	561,693	702,117	843,540	982,963	1,123,389	-	-	-	-	-
12500	2.75	292,549	438,823	585,397	731,372	877,646	1,023,920	1,170,195	-	-	-	-	-
13000	2.00	304,251	456,376	608,501	760,626	912,752	1,064,877	1,217,002	-	-	-	-	-
13500	2.00	315,953	473,929	631,905	789,881	947,858	1,105,834	-	-	-	-	-	-
14000	1.50	327,654	491,482	655,309	819,136	982,963	1,146,791	-	-	-	-	-	-
14500	1.00	339,356	509,035	678,713	848,391	1,018,069	1,187,747	-	-	-	-	-	-
15000	0.50	351,058	526,588	702,117	877,646	1,053,175	1,228,704	-	-	-	-	-	-
15500	0.25	362,760	544,140	725,521	906,901	1,088,281	-	-	-	-	-	-	-

### Burner Size Selection Table

Use Burner Option	Size	For BTUH Above	But Below (BTUH)
BL1	6"	0	250,000
BL2	12"	250,001	500,000
BL3	18"	500,001	750,000
BL4	24"	750,001	1,000,000
BL5	30"	1,000,001	1,250,000

**MANIFOLD ARRANGEMENTS (Includes: Main and Pilot Manual Shut-off Valves; Main and Pilot Pressure Regulators; Pilot Solenoid Valve)**  
**ALL MANIFOLDS ARE CERTIFIED TO ANSI / CSA / FM / GAP\***

<b>BM75</b>	½ psig maximum gas pressure rated manifold with manual pressure regulator, redundant main gas valves and two manual shutoff valves. For use with AG1 or AG3 gas valve options <b>up to 750 MBH</b> . (provides full input rate & 50% of full rate. (1" npt)	AG1, AG3 Only
<b>BM76</b>	½ psig maximum gas pressure rated manifold with manual pressure regulator, redundant main gas valve, Maxitrol electronic modulating valve and two manual shutoff valves. For use with AG30-AG37 modulating gas control options <b>up to 1000 MBH</b> . (1" npt)	AG30 to AG37 Only
<b>BM78</b>	2 psig maximum gas pressure rated manifold with manual pressure regulator, two main gas solenoid valves, Maxitrol electronic modulating valve, high gas pressure safety switch and two manual shutoff valves. For use with AG30-AG37 modulating gas control options <b>up to 1000 MBH</b> . (1" npt) <sup>M</sup>	AG30 to AG37 Only
<b>BM79</b>	2 psig maximum gas pressure rated manifold with two main gas solenoid valves, Maxitrol electronic modulating/regulating valve, high gas pressure safety switch and two manual shutoff valves. For use with AG30-AG37 modulating gas control options <b>up to 1250 MBH</b> . (1 1/4" npt) <sup>M</sup>	AG30 to AG37 Only

\*GAP.4.3.1 (Global asset protection) guidelines are the former IRI guidelines that changed early in 2002.

### Minimum Supply Gas Pressure ("w.c.) for Full Fire

Manifold Option	BM75				BM76		BM78		BM79	
with Gas Control Option	AG1		AG3		AG 30, 31, 32, 33, 35, 36, or 37		AG 30, 31, 32, 33, 35, 36, or 37		AG 30, 31, 32, 33, 35, 36, or 37	
Manifold Size	1"		1"		1"		1"		1-1/4"	
MBH	Nat	Pro	Nat	Pro	Nat	Pro	Nat	Pro	Nat	Pro
<b>250</b>	4.0	1.4	4.0	N/A	4.1	1.6	4.4	1.6	4.6	1.6
<b>500</b>	5.3	1.9	5.0	N/A	5.8	2.3	6.0	2.3	5.2	1.9
<b>750</b>	7.5	2.7	6.8	N/A	8.5	3.3	8.4	3.3	6.1	2.3
<b>1000</b>					12.4	4.7	11.7	4.6	7.4	2.8
<b>1250</b>									9.1	3.5

### Maximum Supply Gas Pressure

Manifold Option	BM75				BM76		BM78		BM79	
with Gas Control Option	AG1		AG3		AG 30, 31, 32, 33, 35, 36, or 37		AG 30, 31, 32, 33, 35, 36, or 37		AG 30, 31, 32, 33, 35, 36, or 37	
Manifold Size	1"		1"		1"		1"		1-1/4"	
MBH	Nat	Pro	Nat	Pro	Nat	Pro	Nat	Pro	Nat	Pro
<b>psig</b>	1/2	1/2	1/2	1/2	1/2	1/2	2	2	2	2

## MINIMUM INLET GAS PRESSURE

Two factors are needed to determine the required inlet gas supply pressure for Models ADF/ADFH: (1) gas pressure at the burner, and (2) the pressure lost as the gas flows through the gas train.

### Factor 1 - Gas Pressure Required at the Burner

(Applications Note: The minimum burner gas pressure requirements are established by the burner manufacturer and represent both the positive and negative force of the gas pressures. With the unit operation, actual differential burner gas pressure requirement is determined by two factors (1) the positive force created by the gas pressure, less (2) the suction or negative pressure created by the operation of the blower.

Firing Rate	Minimum Gas Pressure at the Burner	
Maximum Capacity	Natural Gas 3.6" - 5.0" w.c.	Propane Gas 1.2" - 1.8" w.c.

### Factor 2 - Gas Train Pressure Drop

The gas train pressure drop varies depending on the type of controls.

(NOTE: Maximum natural gas supply pressure is 56" w.c. (2 psig). If actual supply pressure is greater than 14" w.c., a regulator can be field installed in the supply line external to the cabinet or an alternate BM Option rated for 2 psig must be ordered. If gas supply is greater than 14" w.c. but not greater than 5 psig, an optional field-installed gas regulator kit (Option CZ1 to CZ2.) can be ordered.

### Model ADF - Design Certified to ANSI Z83.4, CSA 3.7 for non-recirculating direct gas-fired industrial air heaters.

Provide a Reznor direct-fired 100% makeup air/heating unit. The unit shall be designed to meet the ANSI/CSA standards listed above. If application is a door heater, a door switch shall be provided to control operation. Manufacturer shall have no less than 15 years experience in producing direct-fired heating equipment.

#### CABINET

The unit shall be shipped in one piece from the factory completely wired and piped, with the exception of the following options:

- outside air hood
- roof curb
- evaporative cooling module (factory installed on Sizes 300 and 500)
- remote console
- gas regulator, overhead door switch
- disconnect switch.

Lifting lugs are to be provided from the factory for rigging the unit.

The single-wall (double-wall) cabinet shall be constructed of galvalume steel for high corrosion resistance. Insulation shall be 1", 1 lb. density. The unit shall be fully weatherized for outdoor or indoor installation. Discharge shall be horizontal (vertical) (horizontal with two-position damper) (vertical with two-position damper). All gas and electrical controls shall be mounted in the fully weatherized control compartment with easily removable doors. All access panels and doors shall have pocket handles for ease of handling.

#### OUTPUT

The Model (ADF) (ADFH) Size (300) (500) (700) (1200) by Reznor shall provide ( ) CFM at ( ) in. w.c. of external pressure. The unit shall provide ( ) BTUH with a temperature rise of ( °F [maximum 130°F]) and a final discharge air temperature of ( °F [maximum 120°F - Model ADF, 160°F - Model ADFH]).

#### MOTORS

The unit shall be provided with the following features:

An open dripproof (totally enclosed) (premium efficiency) (two-speed for heating/cooling) blower motor with adjustable drive. Motors ½ to 3 HP shall be provided with a motor contactor (starter). Motors 5HP and larger shall be provided with a motor starter. Supply voltage shall be 115/1 (208/1) (230/1) (230/3) (460/3) (575/3). Control voltage and remote wiring shall be 24 volt. Units with 1/2 - 5HP motor shall have a Class I blower with permanently lubricated ball bearings (Class II blower with pillowblock bearings). Units with 7½ HP and larger motor shall have a Class II blower with pillowblock bearings and heavy duty bearing support.

#### CONTROLS

Gas safety controls shall be provided to meet (ANSI) (CSA) (FM) (GAP) requirements and will include a flame safeguard relay with flame sensor. (Provide high and low gas pressure switches.) Ignition shall be by a 24 volt electronically controlled hot surface intermittent ignition system with a ceramic igniter.

Automatic and manual high temperature limits shall be provided at the discharge of the unit and a high temperature safety at the burner. (Provide firestat at the supply air.) (Provide freezestat at the discharge of the unit.) (Provide adjustable, 0-100°F, outside air cutoff to shutoff gas when outside air temperature exceeds °F.)

Gas control shall be

- Single stage gas valve with unit-mounted air controller (0-100°F)
- Two-stage gas valve with unit-mounted ductstat (60-100°F)
- Electronic modulation gas control discharge air temperature control (55-90°F). Includes discharge air sensor, amplifier, and remote manual temperature selector and control switch mounted on separate 4x4 boxes.
- Electronic modulation gas control discharge air temperature control (55-90°F). Includes discharge air sensor, amplifier, and remote manual temperature selector and control switch mounted on separate 4x4 box. Also includes space override.
- Electronic modulation gas control discharge air temperature control (80-120°F). Includes discharge air sensor, amplifier, and remote manual temperature selector and control switch mounted on separate 4x4 box.
- Electronic modulation gas control compensated discharge air temperature (ADF: 20-120°F, ADFH: 20-140°F) control reset from space temperature. Includes discharge air sensor, amplifier, and remote selectrstat (55-90°F) (shipped separately) & control switch mounted on 4x4 box.
- Electronic modulation gas control discharge air temperature control (120-160°). Includes discharge air sensor, amplifier, and remote manual temperature selector and control switch mounted on separate 4x4 box (ADFH only)
- Electronic modulation gas control for paint booth application includes digital readout, two remote temperature selectors dry selector, ADF: 80-120°F, ADFH: 80-160°F; and spray selector 60-90°F, amplifier, two switches (dry/spray and summer/off/winter) - all mounted on a remote console.

A separate (remote console mounted) three-position summer/winter/off control switch shall be provided. In the electrical compartment, the unit shall include a 13-point circuit analyzer board and burner and blower service switches.

#### BURNER

The velocity of air over the burner must remain constant. Low & high air velocity safety pressure switches shall be provided to protect against low or high air flow over the burner. Burner shall be of cast iron with stainless steel mixing plates. Sight port shall be available for viewing burner and pilot flame.

**ADDITIONAL OPTIONS**

The following accessories may be provided:

- (a) 16" full roof curb
- (b) Smoke detector
- (c) Thermostat
- (d) Indoor filter cabinet with 1" or 2" disposable, permanent, or pleated filters.
- (e) Screened outside air hood with moisture eliminating louvers (without filters) (with 1" or 2" disposable, permanent, or pleated filters)
- (f) Evaporative Cooling Module with (6"/12" cellulose media) (6"/12" rigid glass fiber media) media, (moisture elimination pad), (fill and drain kit) (Aqua Saver time and temperature control system), (water hammer arrestor)
- (g) Remote console with engraved plastic (stainless) cover designed for recessed or flush mounting. Includes three-position switch, blower on light, burner on light, safety lockout light, (temperature selector), (thermostat), (dirty filter indicator)
- (h) Fusible Disconnect switch (indoor) (outdoor)
- (i) Gas supply pressure regulator kit (1" x 1") (1½" x 1½")

**WARRANTY**

Manufacturer shall warrant to the original owner-user that the product shall be free from defects in material or workmanship. This warranty shall be limited to twelve (12) months from the date of original installation, whether or not actual use begins on that date, or eighteen (18) months from date of shipment by manufacturer, whichever occurs first.

## GENERAL DIRECT FIRED DATA AND ACCESSORIES INFORMATION

### INPUT RATE VS CFM AND TEMPERATURE RISE

INPUT RATE VS CFM AND TEMPERATURE RISE FOR ALL REZNOR DIRECT FIRED HEATERS

CFM	TEMPERATURE RISE (°F)										
	20	30	40	50	60	70	80	90	100	110	120
1,000	23,433	35,150	46,866	58,583	70,300	82,016	93,733	105,449	117,166	128,883	140,599
2,000	46,866	70,300	93,733	117,166	140,599	164,032	187,465	210,899	234,332	257,765	281,198
3,000	70,300	105,449	140,599	175,749	210,899	246,048	281,198	316,348	351,498	386,648	421,797
4,000	93,733	140,599	187,465	234,332	281,198	328,065	374,931	421,797	468,664	515,530	562,396
5,000	117,166	175,749	234,332	292,915	351,498	410,081	468,664	527,247	585,830	644,413	702,995
6,000	140,599	210,899	281,198	351,498	421,797	492,097	562,396	632,696	702,995	773,295	843,595
6,500	152,316	228,474	304,631	380,789	456,947	533,105	609,263	685,421	761,578	837,736	913,894
7,000	164,032	246,048	328,065	410,081	492,097	574,113	656,129	738,145	820,161	902,178	984,194
8,000	187,465	281,198	374,931	468,664	562,396	656,129	749,862	843,595	937,327	1,031,060	1,124,793
9,000	210,899	316,348	421,797	527,247	632,696	738,145	843,595	949,044	1,054,493	1,159,943	1,265,392
10,000	234,332	351,498	468,664	585,830	702,995	820,161	937,327	1,054,493	1,171,659	1,288,825	1,405,991
11,000	257,765	386,648	515,530	644,413	773,295	902,178	1,031,060	1,159,943	1,288,825	1,417,708	1,546,591
12,000	281,198	421,797	562,396	702,995	843,595	984,194	1,124,793	1,265,392	1,405,991	1,546,590	1,687,189
13,000	304,631	456,947	609,263	761,578	913,895	1,066,210	1,218,525	1,370,841	1,523,157	1,675,473	1,827,788
14,000	328,065	492,097	656,129	820,161	984,194	1,148,226	1,312,258	1,476,291	1,640,323	1,804,355	1,968,387
15,000	351,498	527,247	702,995	878,744	1,054,493	1,230,242	1,405,991	1,581,740	1,757,489	1,933,238	2,108,986
16,000	374,931	562,396	749,862	937,327	1,124,793	1,312,258	1,499,724	1,687,189	1,874,655	2,062,120	2,249,586
17,000	398,364	597,546	796,728	995,910	1,195,092	1,394,274	1,593,456	1,792,638	1,991,821	2,191,003	2,390,185
18,000	421,797	632,696	843,595	1,054,493	1,265,392	1,476,291	1,687,189	1,898,088	2,108,986	2,319,885	2,530,784
19,000	445,230	667,846	890,461	1,113,076	1,335,691	1,558,307	1,780,922	2,003,537	2,226,152	2,448,768	2,671,383
20,000	468,664	702,995	937,327	1,171,659	1,405,991	1,640,323	1,874,655	2,108,986	2,343,318	2,577,650	2,811,982
21,000	492,097	738,145	984,194	1,230,242	1,476,291	1,722,339	1,968,387	2,214,436	2,460,484	2,706,533	2,952,581
22,000	515,530	773,295	1,031,060	1,288,825	1,546,590	1,804,355	2,062,120	2,319,885	2,577,650	2,835,415	
23,000	538,963	808,445	1,077,926	1,347,408	1,616,890	1,886,371	2,155,853	2,425,334	2,694,816	2,964,298	
24,000	562,396	843,595	1,124,793	1,405,991	1,687,189	1,968,387	2,249,586	2,530,784	2,811,982		
25,000	585,830	878,744	1,171,659	1,464,574	1,757,489	2,050,403	2,343,318	2,636,233	2,929,148		
26,000	609,263	913,894	1,218,525	1,523,157	1,827,788	2,132,420	2,437,051	2,741,682			
27,000	632,696	949,044	1,265,392	1,581,740	1,898,088	2,214,436	2,530,784	2,847,132			
28,000	656,129	984,194	1,312,258	1,640,323	1,968,387	2,296,452	2,624,516	2,952,581			

This table was generated at sea level (29.92" Hg) and standard air temperature (70°F) and density (.074856) using the formula:  
Input Rate = (Discharge CFM x Temperature Rise ΔT °F x Discharge Air Density x .240 x 60) ÷ .92

For applications other than at sea level or 70°F discharge air temperature, use:  
Discharge Air Density = [Barometric Pressure Hg ÷ (460 + Discharge Temperature °F)] x 1.326

### GAS CONTROL SYSTEM

#### 100% Outside Air Only

ADF<sup>A</sup> ADFH<sup>A</sup> RDF

<b>AG1</b>	Single-Stage Gas Valve with Unit-Mounted Air Controller (40-100°F)	OPT	OPT	OPT
<b>AG3</b>	Two-Stage Gas Valve with Unit-Mounted Ductstat (60-100°F)	OPT	OPT	OPT

#### Electronic Modulation <sup>B</sup>

<b>AG30</b>	Discharge air temperature control (55-90°F). Includes discharge air sensor, amplifier, and remote manual temperature selector and control switch mounted on separate 4x4 boxes.	OPT	OPT	OPT
<b>AG31</b>	Discharge air temperature control (55-90°F) with space override. Same as AG30 with the addition of a space override thermostat.	OPT	OPT	OPT
<b>AG32</b>	Discharge air temperature control (80°-120°F). Includes discharge air sensor, amplifier, and remote manual temperature selector and control switch mounted on separate 4x4 boxes.	OPT	OPT	OPT
<b>AG33</b>	Compensated discharge air temperature (ADF - 20°-120°F, ADFH - 20°-140°F) control reset from space temperature. Includes discharge air sensor, amplifier, and remote Selectrastat (55-90° F) (shipped separately) & control switch mounted on 4x4 box.	OPT	OPT	OPT
<b>AG35</b>	Discharge air temperature control (120-160°F). Includes discharge air sensor, amplifier, and remote manual temperature selector and control switch mounted on separate 4x4 boxes.	OPT	OPT	N/A
<b>AG36</b>	For Paint Booth Application includes digital read-out, two remote temperature selectors (Dry Selector, 80-120°F ADF and 80-160°F ADFH; and Spray Selector 60-90°F, Amplifier (Maxitrol A1494), two switches (dry/spray and summer/off/winter) -- all mounted on a remote console <sup>D</sup>	OPT	STD	OPT
<b>AG37</b>	Maxitrol A200 Signal Conditioner (used with customer-supplied 4-20MA or 0-10V input signal) and Special Electronic Modulating Gas Regulator (Conditioner and regulator are factory installed)	OPT	OPT	OPT

#### Programmable Electronic Modulation w/Digital Display and CO<sub>2</sub> Limiting Device <sup>B C</sup>

<b>AG47</b>	Maxitrol DFM14E Digital Control System with Programmable Remote Discharge Temp Selector (40-120°F) w/Digital Display and O/A, R/A and Discharge Sensors to control CO <sub>2</sub> concentration in space.	N/A	N/A	OPT
<b>AG48</b>	Maxitrol DFM44E Digital Control System with 24/7 Programmable Room Thermostat (40-95°F) w/Digital Display and O/A, R/A and Discharge Sensors to control CO <sub>2</sub> concentration in space.	N/A	N/A	OPT
<b>AG51</b>	Same as AG48 with separate Remote Room Sensor.	N/A	N/A	OPT

**STD** - Indicates that a Remote Console is included as **STANDARD** when this option is selected.

**OPT** - Indicates that a Remote Console is available as **OPTIONAL**.

<sup>A</sup> A field-installed control switch is shipped inside the furnace control compartment. (If option RC13 or 14 remote console is ordered, the switch is mounted on the console.) Gas Control Option AG37 requires a field-supplied control system to generate the signal to the unit.

<sup>B</sup> Remote Selectors and Switches may be ordered mounted on a Remote Console (See Options RC13 and RC14). Gas control options require compatible manifold (BM) and air control (AR) options.

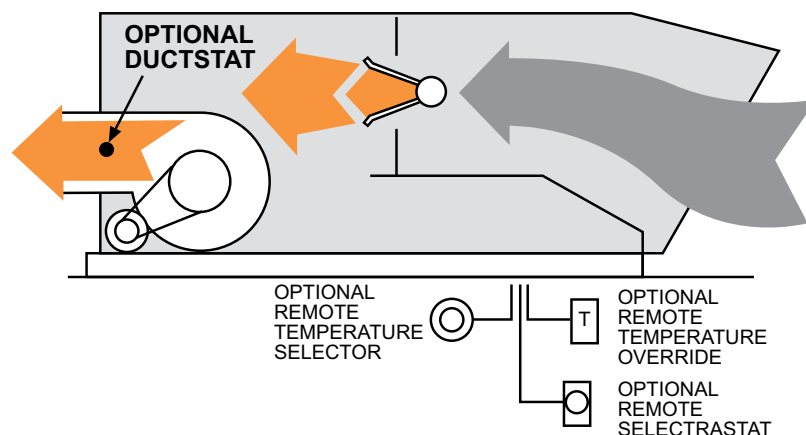
<sup>C</sup> AG47, AG48 or AG51 must be ordered (see table below for details) if all of the following three conditions exist:

<sup>1)</sup> A recirculated room air option (AR22, AR23, AR34, or AR37) is ordered.

<sup>2)</sup> Outdoor design temperature is below minus (-) 20°F.

<sup>3)</sup> Discharge temperature is expected to be above 90°F.

<sup>D</sup> Remote console included with Option AG36 does not include lights.



Compatibility Chart			
AG Option	Used Only With Inlet Air Options	Burner Options	Used Only With Manifold Options
<b>AG1</b>	AR1, AR19, AR20, AR33, AR36	BL1, BL2, BL3	BM75
<b>AG3</b>	AR1, AR19, AR20, AR33, AR36	BL1, BL2, BL3	BM75
<b>AG30</b>	ALL	ALL	BM76, BM78, BM79, BM80, BM81
<b>AG31</b>	ALL	ALL	BM76, BM78, BM79, BM80, BM81
<b>AG32</b>	ALL	ALL	BM76, BM78, BM79, BM80, BM81
<b>AG33</b>	ALL	ALL	BM76, BM78, BM79, BM80, BM81
<b>AG36</b>	AR1, AR19, AR20, AR36	ALL	BM76, BM78, BM79, BM80, BM81
<b>AG37</b>	ALL	ALL	BM76, BM78, BM79, BM80, BM81
<b>AG47</b>	AR22, AR23, AR34, AR37	ALL	BM76, BM78, BM79, BM80, BM81
<b>AG48</b>	AR22, AR23, AR34, AR37	ALL	BM76, BM78, BM79, BM80, BM81
<b>AG51</b>	AR22, AR23, AR34, AR37	ALL	BM76, BM78, BM79, BM80, BM81

<b>Option AG47 includes/ requires:</b>	ADFM14E Amplifier/Digital Control Module	Factory Installed
	Software CD (Windows)	Shipped loose. Unit parameters are preprogrammed. Portable computer w/9 pin serial cable required to change defaults.
	TDDFM14 Programmable Discharge Temp Selector (40-150°F), Digital Display, Unoccupied Mode Relay	Shipped loose or on RC panel option, for Remote Field Installation (max 160 ft from unit using Cat 5 cable)
	TS394-2B-4 Return Air Sensor	Shipped loose, for Field Installation in R/A Mixing Tube
	Mixing Tube for Return Air Sensor	Shipped loose, for Field Installation in R/A duct
	TS394-2B-4 Outdoor Air Sensor in Mixing Tube	Factory Installed and wired
	TS194Q Discharge Air Sensor in Mixing Tube	Factory Installed and wired
<b>Option AG48 includes/ requires:</b>	"Network" type Cat 5 plenum cable w/RJ45 connectors	Field supplied, connects TDDFM14 to unit, max 160 ft.
	ADFM44E Amplifier/Digital Control Module	Factory Installed
	Software CD (Windows)	Shipped loose. Unit parameters are preprogrammed. Portable computer w/9 pin serial cable required to change defaults.
	TDFM44 24/7 Programmable Room Thermostat (40-95°F), Digital Display, Unoccupied Mode Relay	Shipped loose or on RC panel option, for Remote Field Installation (max 160 ft from unit using Cat 5 cable)
	TS394-2B-4 Return Air Sensor	Shipped loose, for Field Installation in R/A Mixing Tube
	Mixing Tube for Return Air Sensor	Shipped loose, for Field Installation in R/A duct
	TS394-2B-4 Outdoor Air Sensor in Mixing Tube	Factory Installed and wired
<b>Option AG51: Option AG48 plus</b>	TS194Q Discharge Air Sensor in Mixing Tube	Factory Installed and wired
	"Network" type Cat 5 plenum cable w/RJ45 connectors	Field supplied, connects TDDFM14 to unit, max 160 ft.
<b>Option AG51: Option AG48 plus</b>		TSDFM44 Remote Room Temp Sensor
		Shipped loose, field wired to Room Thermostat (100 ft max) or to unit (500 ft max)

### REMOTE CONTROL CONSOLE

(shipped separately) (Option RC).

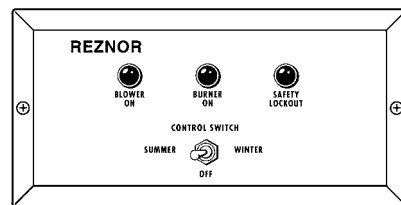
The remote console includes a summer/off/winter switch for control of the unit, allowing blower only operation in the summer position and blower and burner operation in the winter for tempered makeup air. Blower and burner lights indicate that these components are operating. The safety lockout light indicates flame safeguard relay lockout of the unit.

When electronic modulation gas control Option AG30, AG31, AG32, or AG35 is specified with an optional remote console, the discharge air temperature selector may be mounted on the remote console.

Any systems ordered with gas control Option AG36 designed for paint booth application include a remote console. The console includes two switches (dry/spray and summer/off/winter) and a dual control temperature selector. The amplifier for the system is mounted in the console.

When a Model ADF/ADFH is ordered with standard or Option AG3 gas controls, an override thermostat specified with an optional remote console may be ordered mounted on the console. (Override thermostats may not be used with electronic modulation gas controls.)

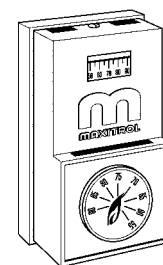
When electronic modulation gas control Option AG33 is specified, there is no temperature selector to mount on the console. The selectrastat shown here is mounted in the space for control of discharge temperature. →



### STANDARD FEATURES OPTIONAL FEATURES

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• 16 Gauge Steel Box</li> <li>• Stainless Steel Mounting Ring</li> <li>• Engraved Plastic Cover</li> <li>• Terminal Block Wiring</li> <li>• Designed for either recessed or wall mounting</li> <li>• Blower on Light</li> <li>• Burner on Light</li> <li>• Safety Lockout Light</li> <li>• Summer/Off/Winter Switch</li> </ul> | <ul style="list-style-type: none"> <li>• Dirty Filter Light</li> <li>• Stainless Steel Cover</li> <li>• Mounted Optional Controls</li> </ul> |
|---|--|

Illustration shown is an example of a remote console. Dimensions and appearance vary by unit and options.



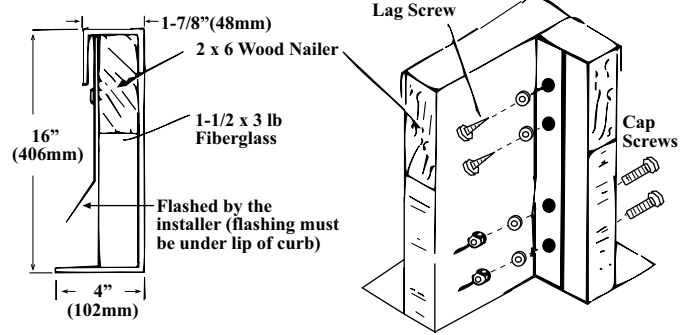
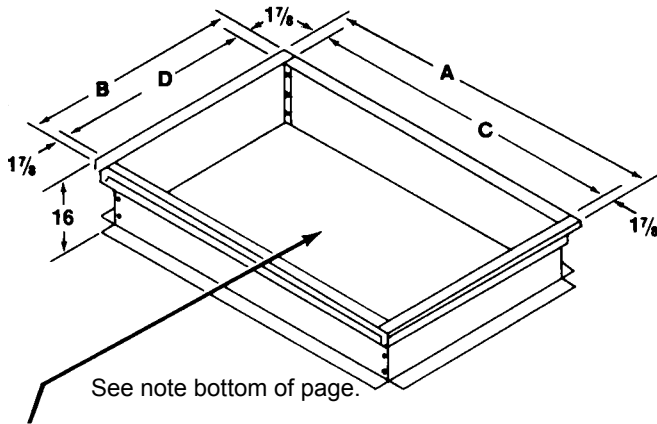
Selectrastat  
used with  
Gas Control  
Option AG33

### CONSOLE DIMENSIONS

The size of the remote control/monitoring console is determined by the gas control specified, whether or not the air control option required a potentiometer, and whether or not a dirty filter light is selected.

Dimensions (inches)	Wall Mounted (using mounting ring) in. (mm)			Recessed (size of box, not using ring) in. (mm)			Locations of Knockout Holes - dimensions (inches) to centerline of all holes
	Length	Height	Depth	Length	Height	Depth	
Console including:							
3 lights, switch, with or without a Maxitrol TD Series temperature selector	10 3/4 (273)	7 5/8 (194)	2 5/8 (67)	10 1/16 (256)	6 3/4 (171)	2 5/8 (67)	
3 lights, switch, potentiometer, with or without a temperature selector							
3 lights, switch, potentiometer, temperature selector							
4 lights, switch, with or without a potentiometer, with or without a temperature selector	15 3/4 (400)	7 5/8 (194)	2 5/8 (67)	15 1/16 (383)	6 3/4 (171)	2 5/8 (67)	
Switches, dual control temperature selector, amplifier (Console provided with Option AG36)							

(SHIPPED SEPARATELY TO BE FIELD ASSEMBLED)



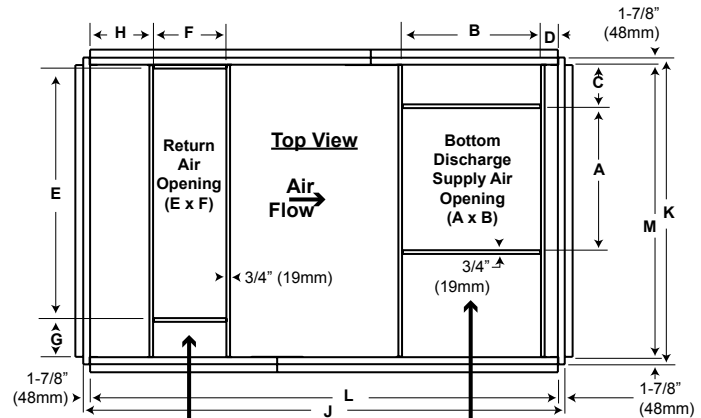
### Dimensions

± 1/8" (3mm)

MODEL→	ADF300		ADF500		ADFH300		ADFH500		ADF700/1200				ADFH700/1200	
DISCHARGE→	Horizontal or Vertical				Vertical Only				Horizontal		Vertical		Vertical Only	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	84 9/16	2148	84 9/16	2148	108 1/4	2750	108 1/4	2750	90 7/8	2308	115 3/4	2940	115 3/4	2940
B	29 13/16	757	43 9/16	1106	29 3/4	756	43 1/2	1105	54 1/2	1384	54 1/2	1384	54 1/2	1384
C*	80 13/16	2053	80 13/16	2053	104 1/2	2654	104 1/2	2654	87 1/8	2213	112	2845	112	2845
D*	26 1/16	662	39 13/16	1011	26	660	39 1/4	997	50 3/4	1289	50 3/4	1289	50 3/4	1289
Ship Wt. - lbs/kg	118	54	133	60	142	64	157	71	152	69	176	80	176	80

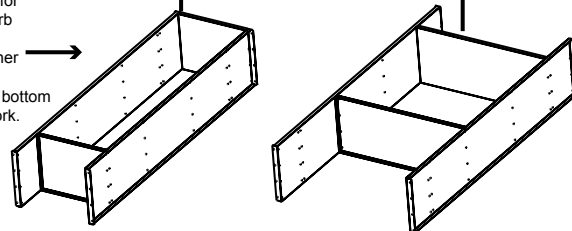
### Roof Curb for Model RDF

Roof Curb Duct Opening Dimensions (± 1/8" or 3mm)						
Sizes	1-20, 1-40, 1-50, 1-65		2-80, 2-120		3-180, 3-260	
	inches	mm	inches	mm	inches	mm
A	23-11/32	593	28-13/32	722	38	965
B	20-1/8	511	28-11/32	720	38	965
C	5	127	13-15/32	342	11-19/32	294
D	10-1/4	260	7	178	4-5/8	117
E	25-1/2	648	54-11/16	1389	66-3/4	1695
F	11-1/2	292	17-23/32	432	20-1/16	510
G	11-15/32	291	8	203	10-15/32	266
H	11-1/32	280	11-3/32	282	17-1/4	438
J	84-5/8	2,149	84-5/8	2,149	131-3/4	3,346
K	43-5/8	1,108	67-9/16	1,716	82-1/16	2,084
L	80-7/8	2,054	80-7/8	2,054	128	3,251
M	39-7/8	1,013	63-13/16	1,621	78-5/16	1,989
Height	16 inches (406 mm)					
Weight	171 lbs (78 kg)		224 lbs (102 kg)		307 lbs (139 kg)	



Field Supplied Assembled Dividers for Return Air Ductwork in the Roof Curb

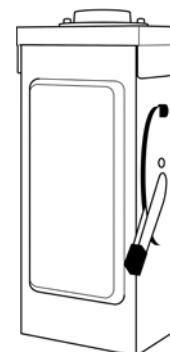
Field-supplied ductwork may be either "dropped in" from the top resting on the top flange or be attached to the bottom flange, using the dividers as ductwork.



**IMPORTANT:** Area enclosed by roof curb must comply with clearance to combustible materials. If roof is constructed of combustible materials, area within curb must be either ventilated, left open, or covered with noncombustible material which has an "R" value of at least 5.0. If area within curb is left open, higher radiated sound levels may result.

Refer to Motor F.L.A. for motor amps. Add unit amps (worst case unit amps is 12.0) to motor F.L.A. to select safety disconnect option. Select a safety disconnect switch from the options available or, field-supply a comparable safety disconnect switch.

Indoor	Voltage	Amp	Option Code		Outdoor	Voltage	Amp	Option Code	
			US	Canada				US	Canada
Non-Fusible	240	30	CP1		Non-Fusible	240	30	CP5	
Fusible	240	30	CP2		Fusible	240	30	CP6	
Non-Fusible	240	60	CP21		Non-Fusible	240	60	CP30	
Fusible	240	60	CP17		Fusible	240	60	CP17	
Non-Fusible	240	100	CP22		Non-Fusible	240	100	CP31	
Fusible	240	100	CP18		Fusible	240	100	CP18	
Non-Fusible	240	200	CP26		Non-Fusible	240	200	CP32	
Fusible	240	200	CP29		Fusible	240	200	CP19	
Non-Fusible	600	30	CP3	CP58	Non-Fusible	600	30	CP7	CP59
Fusible	600	30	CP4	CP41	Fusible	600	30	CP8	CP42
Non-Fusible	600	60	CP23	CP60	Non-Fusible	600	60	CP38	CP61
Fusible	600	60	CP20	CP43	Fusible	600	60	CP20	CP44
Non-Fusible	600	100	CP24	CP62	Non-Fusible	600	100	CP39	CP63
Fusible	600	100	CP36	CP45	Fusible	600	100	CP36	CP46
Non-Fusible	600	200	CP35	CP64	Non-Fusible	600	200	CP40	CP65
Fusible	600	200	CP34	CP47	Fusible	600	200	CP37	CP48



## INLET AIR ACCESSORIES

### Filter Cabinets and Weatherhoods

#### ADF/ADFH

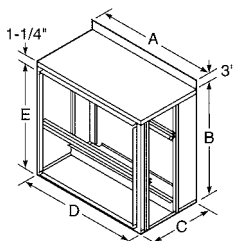
##### INDOOR FILTER CABINET (shipped separately)

All Model ADF/ADFH systems are designed to provide 100% outside makeup air. When a Model ADF/ADFH system is installed indoors, that outside air may be drawn through an optional filter cabinet which is field-attached to the air inlet end of the system. The cabinet is available with either 1" or 2" disposable, 1" or 2" permanent aluminium, or 1" or 2" pleated disposable filters. All cabinets have two filter access doors.

#### Dimensions - Optional Indoor Filter Cabinet

Size	A	B	C*	D**	E**
300	34 1/8	33 1/16	16 13/16	31 1/4	30 1/2
500	47 13/16	33 1/16	16 13/16	45	30 1/2
700/1200	58 15/16	33 1/16	16 13/16	56	30 1/2

Option No.	Indoor Filter Cabinet with -	Approx. Ship Wt. (lbs)		
		300	500	700/1200
AW12	1" Disposable Filters	32	47	60
AW13	2" Disposable Filters	32	47	60
AW3	1" Permanent Filters	32	47	60
AW6	2" Permanent Filters	32	47	60
AW14	1" Pleated Filters	32	47	60
AW15	2" Pleated Filters	32	47	60



\* Includes 1" duct flange extending perpendicular to duct opening.

\*\* Duct connections

### ADF/ADFH SCREENED OUTSIDE AIR HOOD

Option AS2, Outside Air Hood, is a weatherized hood designed to be field assembled and installed around the horizontal inlet air opening. Outside air hoods that include filters (Options AS6, 7, 9, 10, 11, 12) are factory assembled and shipped separately for field installation. To retain certification, a Model ADF/ADFH installed outdoors must include either an optional outside air hood or evaporative cooling module.

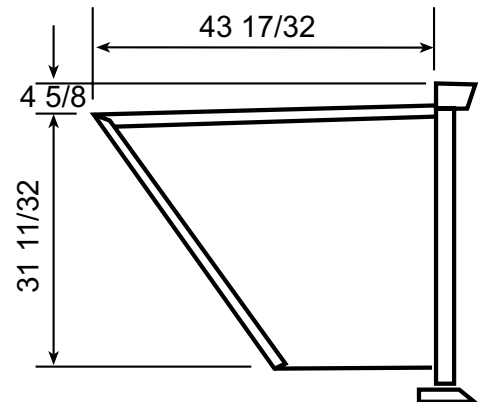
#### Optional Outside Air Hood Dimensions (with or without Filters)

##### STANDARD FEATURES

- Weatherized Hood
- Screened
- Moisture-Elimination Louvers

##### OPTIONAL

- Filter Rack with Filters (hood includes door panels for filter access)

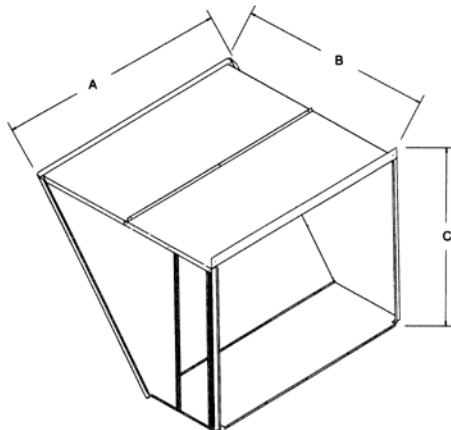


Outside Air Hood is Available less Filter Rack or with Filter Rack and Filter Types

Type →	Without Filter Rack	Disposable		Permanent		Pleated	
Size →		1"	2"	1"	2"	1"	2"
Option →		AS2	AS11	AS12	AS6	AS7	AS9

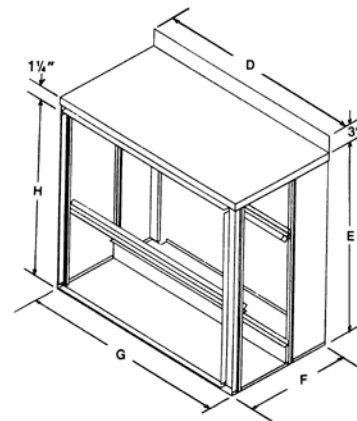
ADF/ADFH Model Size	Width of Air Hood (with or without filters)	Ship Weight (lbs.)						
		AS2	AS11	AS12	AS6	AS7	AS9	AS10
300	34 1/8	76	83	83	83	83	83	83
500	47 7/8	87	99	99	99	99	99	99
700/1200	58 7/8	96	111	111	111	111	111	111

### RDF SCREENED OUTSIDE AIR HOOD (for outdoor units)



**OPTION AS2** OUTSIDE AIR HOOD  
**OPTION AS6** OUTSIDE AIR HOOD w/1" FILTERS  
**OPTION AS7** OUTSIDE AIR HOOD w/2" FILTERS

### RDF INDOOR FILTER CABINET (with duct flange to attach outside air duct)



**OPTION AW3** INDOOR FILTER CABINET w/1" FILTERS  
**OPTION AW6** INDOOR FILTER CABINET w/2" FILTERS  
 (All AW3 and AW6 cabinets have a filter access panel on both sides.)

Model	A	B	C	D	E	F	G*	H*	No. of Filters	Filter Size		Shipping Weights (lbs.)				
										AS6, AW3	AS7, AW6	AS2	AS6	AS7	AW3	AW6
RDF-1	38	55	36	35 9/16	33 1/8	19 1/2	32 15/16	30 3/8	3	12 x 35 x 1	12 x 35 x 2	225	250	270	100	120
RDF-2	62	54	47 1/2	59 9/16	44 5/8	19 1/2	56 15/16	41 7/8	4	12 x 35 x 1	12 x 35 x 2	310	350	380	150	180
									4	12 x 24 x 1	12 x 24 x 2					
RDF-3	74 1/4	64	61 3/8	71 9/16	58 1/2	19 1/2	69 3/8	57 7/16	12	12 x 35 x 1	12 x 35 x 2	400	450	490	200	240

\* Duct Connection. **NOTE: AS Options for RDF-3 require field assembly. All AS and AW Options require field installation.**

## MOTOR FULL LOAD AMPS (F.L.A.) TABLES

HP	Motor Type	Motor F.L.A.	Motor RPM	Voltage	PH
0.50	OPEN	8.80	1750	120	1
0.50	OPEN	5.10	1750	208	1
0.50	OPEN	4.40	1750	240	1
0.50	OPEN	2.10	1750	208	3
0.50	OPEN	2.00	1750	240	3
0.50	OPEN	1.00	1750	480	3
0.50	TEFC	7.00	1750	120	1
0.50	TEFC	3.40	1750	208	1
0.50	TEFC	3.50	1750	240	1
0.50	TEFC	2.30	1750	208	3
0.50	TEFC	2.00	1750	240	3
0.50	TEFC	1.00	1750	480	3
0.50	TEFC	0.70	1750	575	3
0.75	OPEN	11.00	1750	120	1
0.75	OPEN	6.30	1750	208	1
0.75	OPEN	5.50	1750	240	1
0.75	OPEN	2.90	1750	208	3
0.75	OPEN	2.60	1750	240	3
0.75	OPEN	1.30	1750	480	3
0.75	TEFC	11.00	1750	120	1
0.75	TEFC	5.40	1750	208	1
0.75	TEFC	5.50	1750	240	1
0.75	TEFC	2.00	1750	208	3
0.75	TEFC	2.22	1750	240	3
0.75	TEFC	1.10	1750	480	3
0.75	TEFC	0.80	1750	575	3
1.00	OPEN	13.00	1750	120	1
1.00	OPEN	7.50	1750	208	1
1.00	OPEN	6.50	1750	240	1
1.00	OPEN	3.70	1750	208	3
1.00	OPEN	3.20	1750	240	3
1.00	OPEN	1.60	1750	480	3
1.00	OPEN	1.40	1750	575	3
1.00	TEFC	13.00	1750	120	1
1.00	TEFC	6.50	1750	240	1
1.00	TEFC	3.30	1750	208	3
1.00	TEFC	3.40	1750	240	3
1.00	TEFC	1.70	1750	480	3
1.00	TEFC	1.40	1750	575	3
1.00	EE	3.10	1750	208	3
1.00	EE	2.70	1750	240	3
1.00	EE	1.35	1750	480	3
1.00	EE	1.10	1750	575	3
1.50	TEFC	16.40	1750	120	1
1.50	TEFC	9.50	1750	208	1
1.50	TEFC	8.20	1750	240	1
1.50	TEFC	4.30	1750	208	3
1.50	TEFC	4.40	1750	240	3
1.50	TEFC	2.20	1750	480	3
1.50	TEFC	1.80	1750	575	3
1.50	EE	4.50	1750	208	3
1.50	EE	3.90	1750	240	3
1.50	EE	1.95	1750	480	3
1.50	EE	1.60	1750	575	3
1.50	OPEN	15.00	1750	120	1
1.50	OPEN	8.30	1750	208	1
1.50	OPEN	7.50	1750	240	1
1.50	OPEN	5.60	1750	208	3
1.50	OPEN	5.00	1750	240	3
1.50	OPEN	2.70	1750	480	3
1.50	OPEN	2.00	1750	575	3

HP	Motor Type	Motor F.L.A.	Motor RPM	Voltage	PH
2.00	OPEN	20.40	1750	120	1
2.00	OPEN	10.00	1750	208	1
2.00	OPEN	10.20	1750	240	1
2.00	OPEN	7.00	1750	208	3
2.00	OPEN	6.60	1750	240	3
2.00	OPEN	3.30	1750	480	3
2.00	OPEN	2.40	1750	575	3
2.00	TEFC	24.00	1750	120	1
2.00	TEFC	12.00	1750	240	1
2.00	TEFC	6.50	1750	208	3
2.00	TEFC	5.60	1750	240	3
2.00	TEFC	2.80	1750	480	3
2.00	TEFC	2.20	1750	575	3
2.00	EE	6.00	1750	208	3
2.00	EE	5.20	1750	240	3
2.00	EE	2.60	1750	480	3
2.00	EE	2.10	1750	575	3
3.00	OPEN	14.00	3600	208	1
3.00	OPEN	12.40	3600	240	1
3.00	OPEN	9.10	3600	208	3
3.00	OPEN	8.40	3600	240	3
3.00	OPEN	4.20	3600	480	3
3.00	OPEN	3.60	3600	575	3
3.00	TEFC	30.00	3600	120	1
3.00	TEFC	15.00	3600	240	1
3.00	TEFC	8.50	3600	208	3
3.00	TEFC	8.20	3600	240	3
3.00	TEFC	4.10	3600	480	3
3.00	TEFC	3.10	3600	575	3
3.00	EE	8.60	3600	208	3
3.00	EE	7.80	3600	240	3
3.00	EE	3.90	3600	480	3
3.00	EE	3.00	3600	575	3
5.00	OPEN	28.00	3600	208	1
5.00	OPEN	26.00	3600	240	1
5.00	OPEN	13.40	3600	208	3
5.00	OPEN	13.20	3600	240	3
5.00	OPEN	6.60	3600	480	3
5.00	OPEN	5.40	3600	575	3
5.00	TEFC	13.20	3600	208	1
5.00	TEFC	12.00	3600	240	1
5.00	TEFC	6.00	3600	480	3
5.00	TEFC	4.80	3600	575	3
5.00	TEFC	22.80	3600	240	3
5.00	EE	13.90	3600	208	3
5.00	EE	12.60	3600	240	3
5.00	EE	6.30	3600	480	3
5.00	EE	4.80	3600	575	3
5/2.2	2 SPD	17.2/11.3	1800/1200	208	1
5/2.2	2 SPD	15.5/10.2	1800/1200	230	3
5/2.2	2 SPD	7.1/4.8	1800/1200	460	3
7.50	OPEN	22.00	1750	208	3
7.50	OPEN	21.00	1750	240	3
7.50	OPEN	35.00	1750	208	1
7.50	OPEN	32.00	1750	240	1
7.50	OPEN	10.50	1750	480	3
7.50	OPEN	8.40	1750	575	3
7.50	TEFC	34.00	1750	240	1
7.50	TEFC	23.00	1750	208	3
7.50	TEFC	21.00	1750	240	3
7.50	TEFC	10.50	1750	480	3

## MOTOR FULL LOAD AMPS (F.L.A.) TABLES (cont'd)

HP	Motor Type	Motor F.L.A.	Motor RPM	Voltage	PH
7.50	TEFC	8.40	1750	575	3
7.50	EE	22.50	1750	208	3
7.50	EE	19.60	1750	240	3
7.50	EE	9.80	1750	480	3
7.50	EE	7.50	1750	575	3
7.5/3.3	2 SPD	21.6/13.6	1800/1200	208	3
7.5/3.3	2 SPD	19.5/12.3	1800/1200	230	3
7.5/3.3	2 SPD	9.75/6.2	1800/1200	460	3
10.00	OPEN	42.00	1750	208	1
10.00	OPEN	38.00	1750	240	1
10.00	OPEN	30.00	1750	208	3
10.00	OPEN	26.00	1750	240	3
10.00	OPEN	13.00	1750	480	3
10.00	OPEN	10.40	1750	575	3
10.00	OPEN	9.90	1750	575	3
10.00	TEFC	39.00	1750	240	1
10.00	TEFC	30.00	1750	208	3
10.00	TEFC	26.00	1750	240	3
10.00	TEFC	13.00	1750	480	3
10.00	TEFC	10.40	1750	575	3
10.00	TEE	28.00	1750	208	3
10.00	EE	24.40	1750	240	3
10.00	EE	12.20	1750	480	3
10.00	EE	9.70	1750	575	3
10/4.4	2 SPD	31/19.4	1800/1200	208	3
10/4.4	2 SPD	28/17.5	1800/1200	230	3
10/4.4	2 SPD	13.5/7.5	1800/1200	460	3
15.00	OPEN	43.10	1750	208	3
15.00	OPEN	39.00	1750	240	3
15.00	OPEN	19.50	1750	480	3
15.00	OPEN	16.00	1750	575	3
15.00	TEFC	38.00	1750	240	3
15.00	TEFC	19.00	1750	480	3
15.00	TEFC	15.00	1750	575	3
15.00	EE	40.00	1750	208	3
15.00	EE	36.00	1750	240	3
15.00	EE	18.00	1750	480	1
15.00	EE	14.50	1750	575	3
15/6.7	2 SPD	45/21	1800/1200	208	3
15/6.7	2 SPD	54/21	1800/1200	230	3
15/6.7	2 SPD	20/10.5	1800/1200	460	3
20.00	OPEN	58.70	1750	208	3
20.00	OPEN	53.00	1750	240	3
20.00	OPEN	26.50	1750	480	3
20.00	OPEN	21.20	1750	575	3
20.00	TEFC	52.00	1750	240	3
20.00	TEFC	26.00	1750	480	3
20.00	TEFC	20.60	1750	55	3
20.00	EE	52.90	1750	208	3
20.00	EE	48.00	1750	140	3
20.00	EE	24.00	1750	480	3
20.00	EE	19.20	1750	575	3
20/8.9	2 SPD	53.8/27.9	1800/1200	208	3
20/8.9	2 SPD	51/27	1800/1200	230	3
20/8.9	2 SPD	24/12	1800/1200	460	3
25.00	OPEN	73.00	1750	208	3
25.00	OPEN	66.00	1750	240	3
25.00	OPEN	33.00	1750	480	3
25.00	OPEN	26.00	1750	575	3
25.00	OPEN	69.20	1750	208	3
25.00	OPEN	66.00	1750	230	3
25.00	OPEN	33	1750	460	3
25.00	TEFC	25	1750	575	3
25.00	TEFC	76	1750	208	3
25.00	TEFC	60	1750	230	3

HP	Motor Type	Motor F.L.A.	Motor RPM	Voltage	PH
25.00	TEFC	30.00	1750	460	3
25.00	TEFC	24.00	1750	575	3
25.00	EE/OPEN	67.30	1750	208	3
25.00	EE/OPEN	61.00	1750	230	3
25.00	EE/OPEN	30.50	1750	460	3
25.00	EE/OPEN	24.50	1750	575	3
25/11	2 SPD	30/17.0	1800/1200	460	3
30.00	OPEN	78.00	1750	208	3
30.00	OPEN	74.00	1750	240	3
30.00	OPEN	37.00	1750	480	3
30.00	OPEN	28.50	1750	575	3
30.00	TEFC	91.00	1750	208	3
30.00	TEFC	72.00	1750	230	3
30.00	TEFC	36.00	1750	460	3
30.00	TEFC	258.50	1750	575	3
30.00	EE/OPEN	81.00	1750	208	3
30.00	EE/OPEN	73.20	1750	230	3
30.00	EE/OPEN	36.60	1750	460	3
30.00	EE/OPEN	29.30	1750	575	3
30/13	2 SPD	38/18	1800/1200	460	3
40.00	OPEN	105.00	1750	208	3
40.00	OPEN	104.00	1750	230	3
40.00	OPEN	52.00	1750	460	3
40.00	OPEN	37.60	1750	575	3
40.00	TEFC	120.00	1750	208	3
40.00	TEFC	94.00	1750	230	3
40.00	TEFC	47.00	1750	460	3
40.00	TEFC	39.00	1750	575	3
40.00	EE/OPEN	106.00	1750	208	3
40.00	EE/OPEN	6.00	1750	230	3
40.00	EE/OPEN	48.00	1750	460	3
40.00	EE/OPEN	38.00	1750	575	3
40/18	2 SPD	57/26	1800/1200	460	3
50.00	OPEN	140.00	1750	208	3
50.00	OPEN	126.00	1750	230	3
50.00	OPEN	63.00	1750	460	3
50.00	OPEN	48.00	1750	575	3
50.00	TEFC	142.00	1750	208	3
50.00	TEFC	118	1750	230	3
50.00	TEFC	59	1750	460	3
50.00	TEFC	47	1750	575	3
50.00	EE/OPEN	132.00	1750	208	3
50.00	EE/OPEN	120.00	1750	230	3
50.00	EE/OPEN	60.00	1750	460	3
50.00	EE/OPEN	48.00	1750	575	3
60.00	OPEN	140.00	1750	230	3
60.00	OPEN	70.00	1750	460	3
60.00	OPEN	57.00	1750	575	3
60.00	TEFC	140.00	1750	230	3
60.00	TEFC	70.00	1750	460	3
60.00	TEFC	58.00	1750	575	3
60.00	EE/OPEN	148.00	1750	208	3
60.00	EE/OPEN	144	1750	230	3
60.00	EE/OPEN	72	1750	460	3
60.00	EE/OPEN	52.5	1750	575	3
75.00	OPEN	170.00	1750	230	3
75.00	OPEN	85.00	1750	460	3
75.00	OPEN	71.50	1750	575	3
75.00	TEFC	168.00	1750	230	3
75.00	TEFC	84.00	1750	460	3
75.00	TEFC	70.00	1750	575	3
75.00	EE/OPEN	186	1750	208	3
75.00	EE/OPEN	170	1750	230	3
75.00	EE/OPEN	85	1750	460	3
75.00	EE/OPEN	65.6	1750	575	3

# REZNOR PRODUCT LIMITED WARRANTY

Reznor, LLC warrants to the original owner-user that this Reznor product will be free from defects in material or workmanship. This warranty is limited to twelve (12) months from the date of original installation, whether or not actual use begins on that date, or eighteen (18) months from date of shipment by Reznor, LLC, whichever occurs first.

## LIMITATIONS AND EXCLUSIONS

Reznor, LLC obligations under this warranty and the sole remedy for its breach are limited to repair, at its manufacturing facility, of any part or parts of its Reznor products which prove to be defective; or, in its sole discretion, replacement of such products. All returns of defective parts or products must include the product model number and serial number, and must be made through an authorized Reznor distributor or arranged through Reznor Customer Service. Authorized returns must be shipped prepaid. Repaired or replacement parts will be shipped by Reznor, LLC F.O.B. shipping point.

1. The warranty provided herein does not cover charges for labor or other costs incurred in the troubleshooting, repair, removal, installation, service or handling of parts or complete products.
2. All claims under the warranty provided herein must be made within ninety (90) days from the date of discovery of the defect. Failure to notify Reznor, LLC of a warranted defect within ninety (90) days of its discovery voids Reznor, LLC obligations hereunder.
3. The warranty provided herein shall be void and of no effect in the event that (a) the product has been operated outside its designed output capacity (heating, cooling, airflow); (b) the product has been subjected to misuse, neglect, accident, improper or inadequate maintenance, corrosive environments, environments containing airborne contaminants (silicone, aluminum oxide, etc.), or excessive thermal shock; (c) unauthorized modifications are made to the product; (d) the product is not installed or operated in compliance with the manufacturer's printed instructions; (e) the product is not installed and operated in compliance with applicable building, mechanical, plumbing and electrical codes; or (f) the serial number of the product has been altered, defaced or removed.
4. The warranty provided herein is for repair or replacement only. Reznor, LLC shall not be liable for any loss, cost, damage, or expense of any kind arising out of a breach of the warranty. Further, Reznor, LLC shall not be liable for any incidental, consequential, exemplary, special, or punitive damages, nor for any loss of revenue, profit or use, arising out of a breach of this warranty or in connection with the sale, maintenance, use, operation or repair of any Reznor product. In no event will Reznor, LLC be liable for any amount greater than the purchase price of a defective product. The disclaimers of liability included in this paragraph 4 shall remain in effect and shall continue to be enforceable in the event that any remedy herein shall fail of its essential purpose.
5. THIS WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY FOR REZNOR PRODUCTS, AND IS IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES. REZNOR, LLC SPECIFICALLY DISCLAIMS ALL OTHER EXPRESS AND IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. No person or entity is authorized to bind Reznor, LLC to any other warranty, obligation or liability for any Reznor product. Installation, operation or use of the Reznor product for which this warranty is issued shall constitute acceptance of the terms hereof.

### SUMMARY AND INDEX OF REZNOR DIRECT-FIRED EQUIPMENT

(All models are approved for either indoor or outdoor installation; options may be required.)

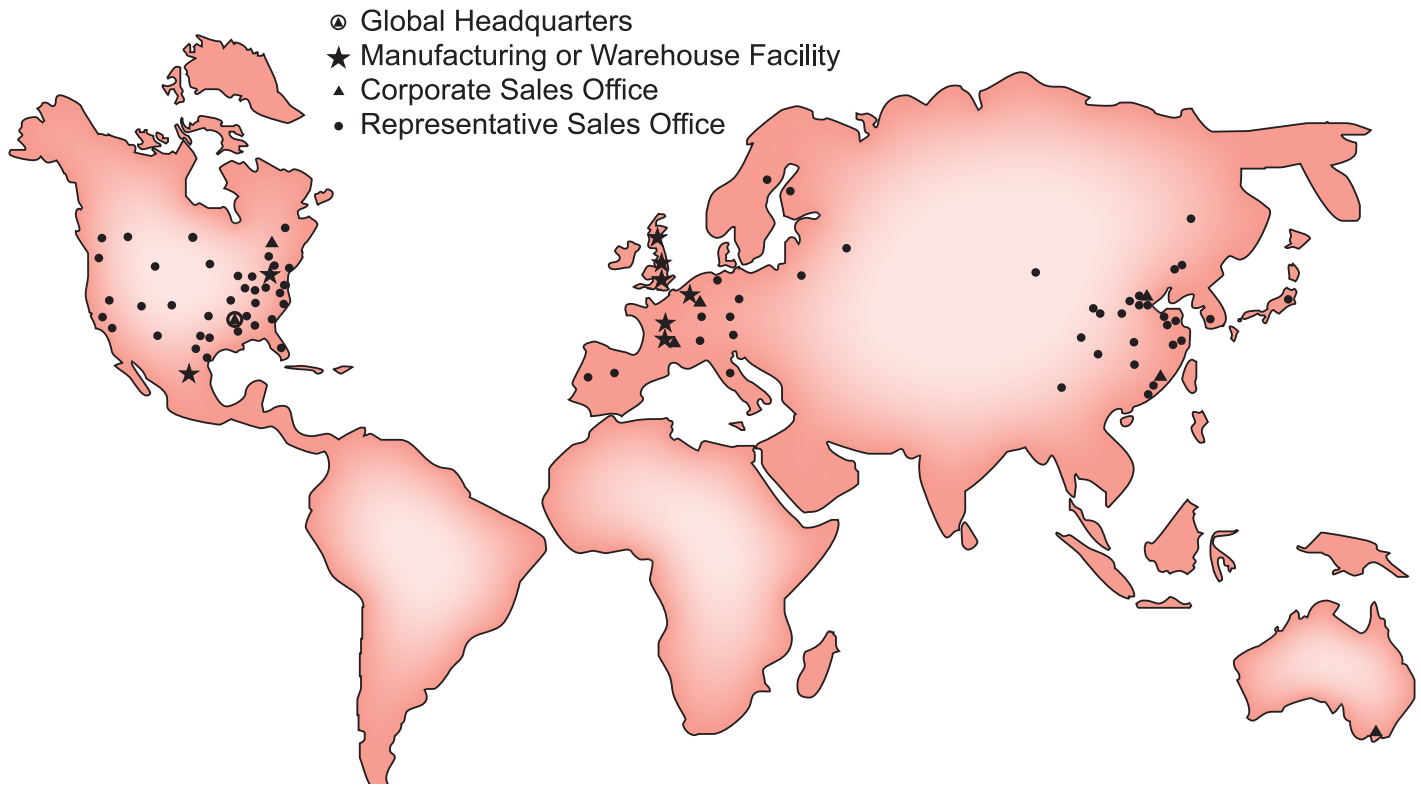
SUMMARY AND INDEX OF REZNOR DIRECT-FIRED EQUIPMENT (All models are approved for either indoor or outdoor installation; options may be required.)	CFM Range	Model	Size	MBH Maximum Capacity
	1000-3000	RDF-1	20	400
	2000-5000	ADF	300	500
	2000-6000	ADFH	300	
	2000-4500	RDF-1	40	600
	2000-5500	ADF	500	750
	2000-7300	ADFH	500	
	3000-6000	RDF-1	50	
	3000-10000	ADF	700	1250
		ADFH	700	
		ADF	1200	
	3000-15500	ADFH	1200	
		RDF-1	65	750
	4000-6500	RDF-1	65	750
	6000-12000	RDF-2	80	1500
	9000-16000	RDF-2	120	1500
	11000-20000	RDF-3	180	2500
	16000-28000	RDF-3	260	3000

\* For information on Models DFCH and DFCV, see Form RZ-NA-S-DFC.

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and air conditioning equipment.**



**For more information on Reznor HVAC Equipment,  
contact your local Reznor Representative by calling  
800-695-1901.**

**Or, find us on the internet at  
[www.ReznorHVAC.com](http://www.ReznorHVAC.com)**