Ecoer DFi Gas Furnace Specification

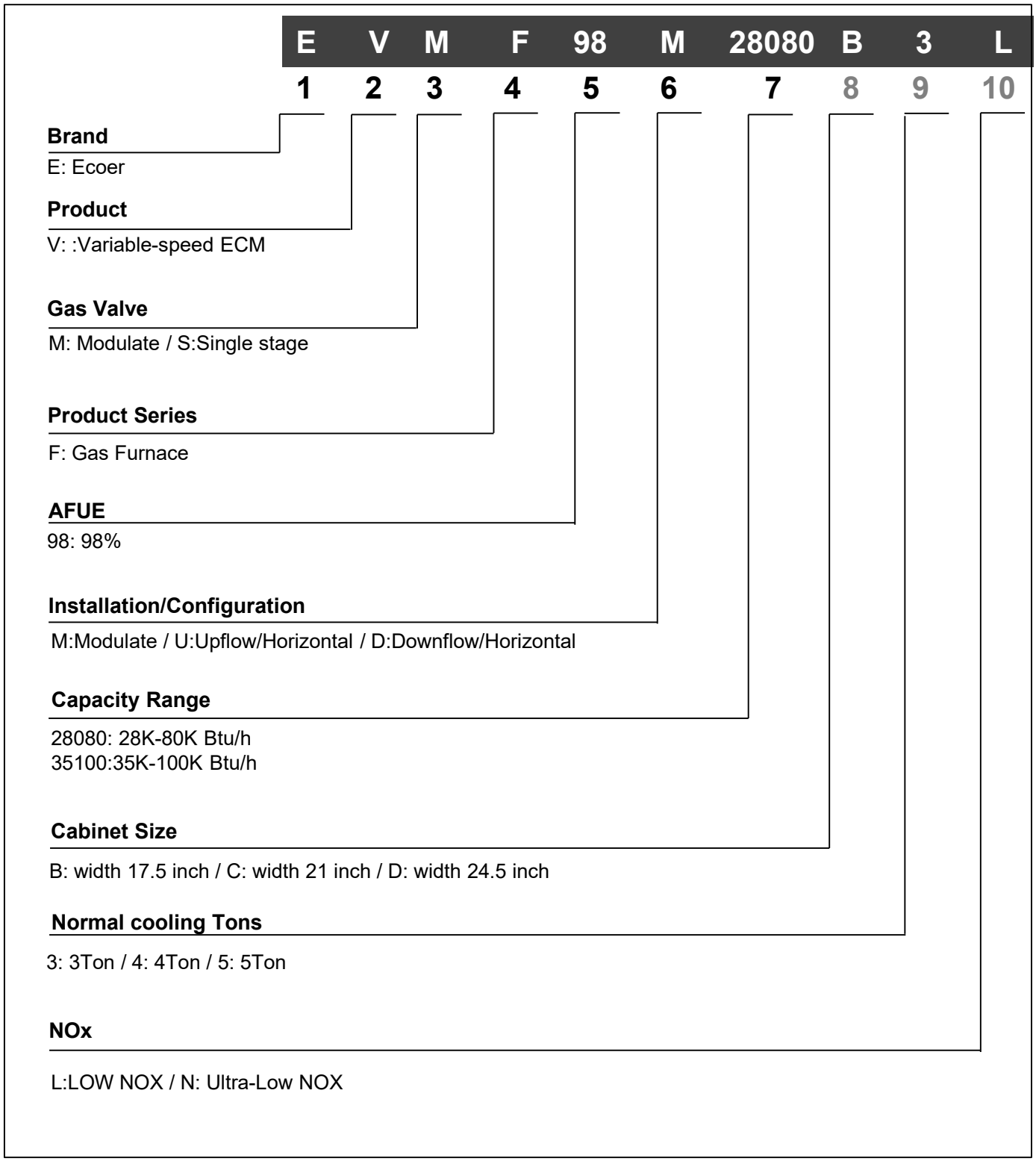
EVMF98M28080B3L & EVMF98M35100C5L

Content

Standard Features

1. Efficiency rating of up to 98% AFUE;
2. Covering a wide capacity range from 28,000 to 100,000 BTUs with just two SKU;
3. Equipped with an IoT Gateway;
4. Supports four different installation configurations;
5. The furnace automatically adjusts gas volume for different altitudes.

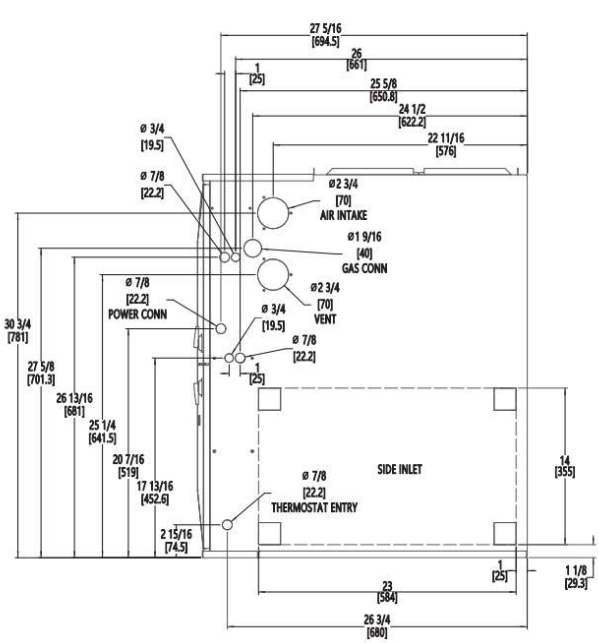
1. Nomenclature

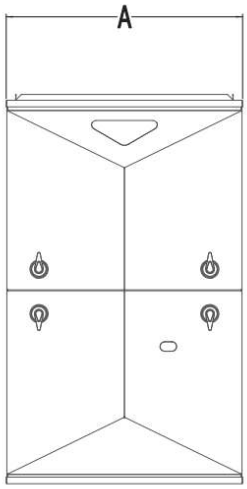


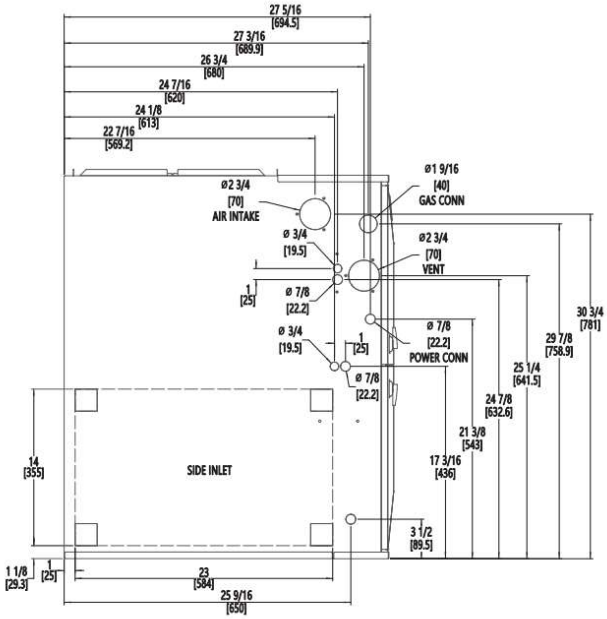
2. Technical Specifications

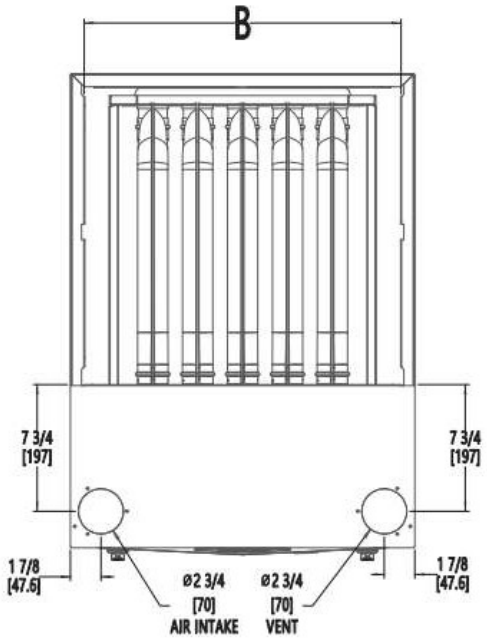
Sale Model			EVMF98M28080B3L	EVMF98M35100C5L
Power supply		V-Ph-Hz	115V/60HZ/1PH	115V/60HZ/1PH
MOP		A	15	20
Gas Type			Natural Gas/Propane Gas	Natural Gas/Propane Gas
AFUE		%	98.0%	97.5%
Input	Hi	Btu/h	80000	100000
	Med	Btu/h	56000	70000
	Lo	Btu/h	28000	35000
Output	Hi	Btu/h	78500	98000
	Med	Btu/h	55000	68500
	Lo	Btu/h	27500	34000
Air Temperature Rise		°F	36-51	37-52
Design Max. Outlet Air Temperature		°F	165	170
Blower Fan	material		Metal	Metal
	Type		Centrifugal Fan Wheel	Centrifugal Fan Wheel
	Diameter	mm	314	325
	Height	mm	203	285
Inducer Power Input	Model		FASCO 70920361	FASCO 70920361
	(Max)	W	196±10%	196±10%
	(Min)	W	110±10%	110±10%
Tons AC		tons	1.5/2/2.5/3	3.5/4/4.5/5
Motor	model		ZWK702B5A3142	ZWK702E0A3073
	Horsepower	HP	1/2hp	1.0hp
Max.Inlet Gas Press	Nature Gas	IN W.C.	10.5	10.5
	Propane Gas	IN W.C.	13	13
Min.Inlet Gas Press	Nature Gas	IN W.C.	4.5	4.5
	Propane Gas	IN W.C.	10	10
Manifold Gas Press-NG	Hi	IN W.C.	3.8	3.8
	Med	IN W.C.	1.86	1.86
	Lo	IN W.C.	0.6	0.6
Manifold Gas Press-Pro	Hi	IN W.C.	9	9
	Med	IN W.C.	4.4	4.4
	Lo	IN W.C.	1.2	1.2
heat exchanger Diameter (Primary)		mm	Clamshell	Clamshell
heat exchanger Diameter (Secondary)		mm	9.52	9.52
heat exchangers (Primary)		pcs	4	5
heat exchangers (Secondary)		pcs	33	39
Vent Diameter x lengh		Inch	2“x100ft / 3"x175ft	2“x50ft / 3"x150ft
Pressure Switch	(HIGH)	IN W.C.	1.1	1.1
	(MED)	IN W.C.	0.75	0.75
	(LOW)	IN W.C.	0.55	0.55
Pressure Sensor	/	/	5V analog signal-±500pa	5V analog signal-±500pa
Flame Rollout Temperature Limit	Off/On	°F	300(manual reset)	300(manual reset)
Outlet High Temperature Limit Switch	Off/On	°F	180/150	180/150
Reflow High Temperature Limit Switch	Off/On	°F	120/90	120/90
Burners		pcs	4	5
Natural Gas Factory Orifice		#	44	44
Propane Gas Factory Orifice		#	54	54
Gas Connection Size		NPT	1/2	1/2
Ignition Type			Hot surface	Hot surface
Packing Dimension (with plate)		Inch	20.7"*32.5"*41"	24.2"*32.5"*41"
Shipping(40HQ)		pcs	106	120

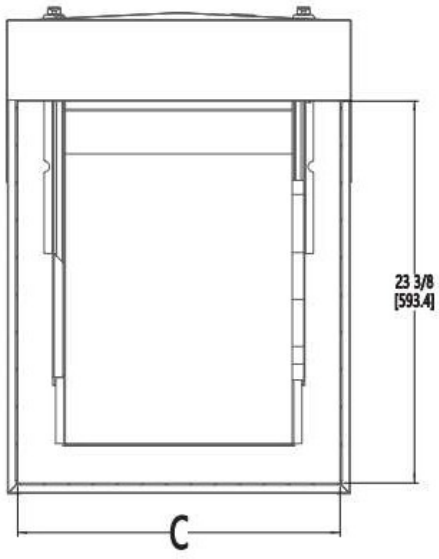
3. Dimensions





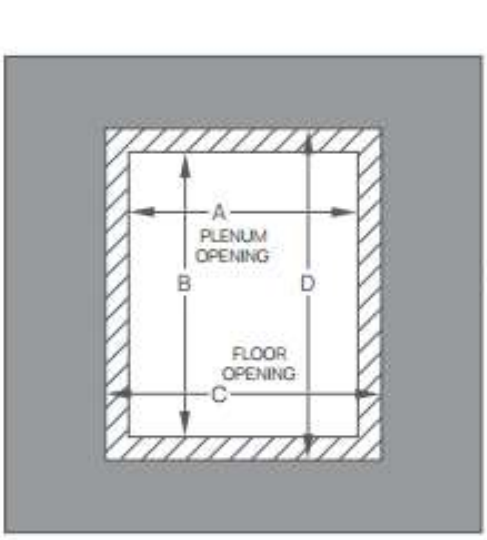


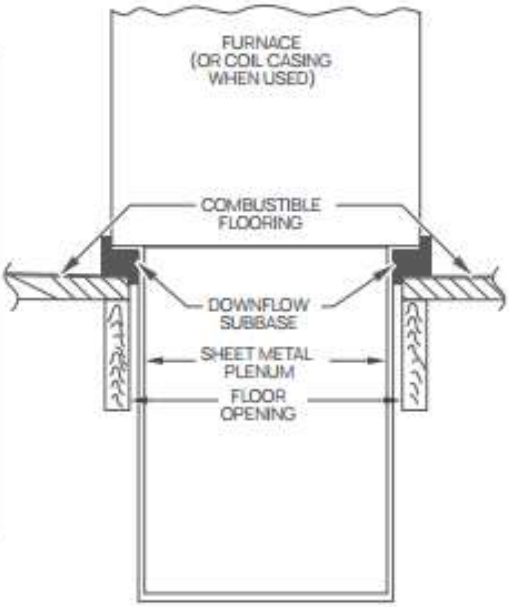


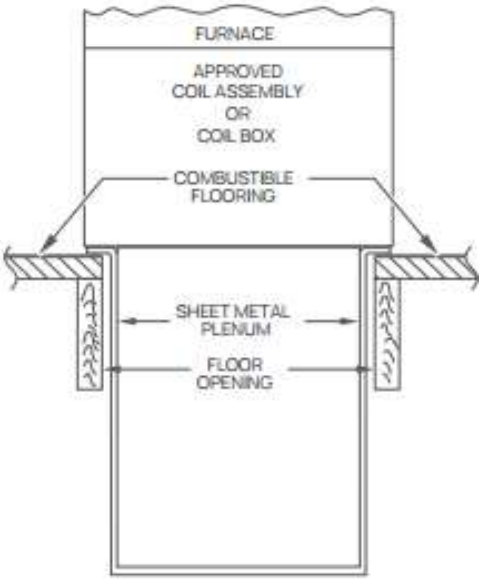


Unit Size	A	B	C	NET WT. LB (KG)	SHIP WT. LB (KG)
	CABINET WIDTH	OUTLET WIDTH	BOTTOM INLET WIDTH		
80B	17.5	15.9	16.4	150（68）	182（83）
100C	21	19.4	19.9	173（78.5）	208（94）

4. Required Floor Opening







4.1 Opening Dimensions -- In. (mm)

Cabinet Width	Application	Plenum opening		Floor opening	
		A	B	C	D
17.5	Up flow Applications on Combustible or Noncombustible	16 (406)	21-5/8 (549)	16-5/8 (422)	22-1/4 (565)
	Downflow Applications on Noncombustible Flooring	15-7/8 (403)	19 (483)	16-1/2 (419)	19-5/8 (498)
	Downflow applications on combustible flooring	15-1/8 (384)	19 (483)	16-3/4 (425)	20-5/8 (600)
	Downflow Applications on Combustible Flooring with coil box	15-1/2 (394)	19 (483)	16-1/2 (419)	20 (508)
21	Up flow Applications on Combustible or Noncombustible	19-1/2 (495)	21-5/8 (549)	20-1/8 (511)	22-1/4 (565)
	Downflow Applications on Noncombustible Flooring	19-3/8 (492)	19 (483)	20 (508)	19-5/8 (498)
	Downflow applications on combustible flooring	18-5/8 (473)	19 (483)	20-1/4 (514)	20-5/8 (600)
	Downflow Applications on Combustible Flooring with coil box	19 (483)	19 (483)	20 (508)	20 (508)

5. Air Delivery

The duct system should be designed and sized according to accepted national standards such as those published by: Air Conditioning Contractors Association (ACCA Manual D) , Sheet Metal and Air Conditioning Contractors National.

Association (SMACNA) or American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) or consult The Air Systems Design Guidelines reference tables available from your local distributor. The duct system should be sized to handle the required system design CFM at the design external static pressure. . The furnace airflow rates are provided in the table below.

5.1 Heating Air Delivery -- CFM (Bottom Return Without Filter)

Model	Speed		External Static Pressure (ESP)									
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
80B	Maximum Heat	CFM	1298	1295	1300	1300	1305	1304	1301	1309	1209	-
		Temp Rise	51.5	51.6	51.4	51.4	51.2	51.3	51.4	51.1	55.3	-
	Intermediate Heat	CFM	994	998	1001	1002	1005	1004	1010	1008	1013	1015
		Temp Rise	47.1	46.9	46.8	46.7	46.6	46.6	46.3	46.4	46.2	46.1
	Minimum Heat	CFM	651	652	650	649	651	648	654	653	655	658
		Temp Rise	35.9	35.9	36.0	36.1	35.9	36.1	35.8	35.8	35.7	35.6
100C	Maximum Heat	CFM	1501	1495	1500	1498	1502	1501	1495	1503	1505	1510
		Temp Rise	55.7	55.9	55.7	55.8	55.6	55.7	55.9	55.6	55.5	55.3
	Intermediate Heat	CFM	1152	1157	1155	1157	1157	1153	1155	1153	1161	1158
		Temp Rise	50.8	50.6	50.6	50.6	50.6	50.7	50.6	50.7	50.4	50.5
	Minimum Heat	CFM	745	749	750	746	750	751	753	751	755	762
		Temp Rise	39.3	39.1	39.0	39.2	39.0	38.9	38.8	38.9	38.7	38.4

1. A filter is required for each return -air Inlet. Airflow performance Included 3/4-In. (19 mm) washable filter media such as contained In factory-authorized accessory filter rack. To determine airflow performance with this filter, assume an additional 0.1 in. wc available external static pressure.
2. The airflows in the above table is based on bottom return or both bottom and side return air.
3. All airflows are 5% less on side return only installations.

5.2 Cooling Air Delivery -- CFM (Bottom Return Without Filter)

Unit Size	CF Switch Settings			External Static Pressure (ESP)									
	SW2-1	SW2-2	SW2-3	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Cabinet B/A	ON	OFF	OFF	548	549	546	548	550	546	550	547	550	549
	ON	OFF	ON	640	642	641	645	650	644	644	648	650	648
	ON	ON	OFF	743	745	744	748	750	747	748	756	750	751
	ON	ON	ON	842	844	843	848	850	847	848	857	850	851
	OFF	OFF	OFF	941	942	947	944	950	944	945	947	950	941
	*OFF	OFF	ON	1041	1042	1047	1043	1050	1043	1044	1047	1050	1041
	OFF	ON	OFF	1119	1119	1125	1121	1120	1121	1122	1125	1120	1081
	OFF	ON	ON	1190	1191	1197	1193	1200	1193	1194	1197	1200	1142
Cabinet C/D	ON	OFF	OFF	994	997	997	995	1000	995	996	995	1000	996
	ON	OFF	ON	1099	1095	1097	1100	1100	1099	1095	1102	1100	1101
	ON	ON	OFF	1199	1195	1197	1200	1200	1199	1195	1202	1200	1201
	ON	ON	ON	1299	1294	1297	1300	1300	1299	1294	1302	1300	1301
	OFF	OFF	OFF	1399	1394	1397	1400	1400	1399	1394	1403	1400	1401
	*OFF	OFF	ON	1499	1494	1496	1500	1500	1499	1494	1503	1500	1501
	OFF	ON	OFF	1602	1596	1599	1603	1600	1602	1596	1599	1600	1604
	OFF	ON	ON	1699	1693	1696	1700	1700	1699	1693	1703	1700	1701

* Factory default settings.

Through different dialing settings, 8 optional air volumes can be set.

#"Speed model" has three modes (standard/high speed/Low speed), which can be set through "press bottom" or Internet app. If not, the factory default standard model will be used.

1、A filter is required for each return -air Inlet. Airflow performance Included 3/4-In. (19 mm) washable filter media such as contained In factory-authorized accessory filter rack. To determine airflow performance with this filter, assume an additional 0.1 in. wc available external static pressure.

2、The airflows in the above table is based on bottom return or both bottom and side return air.

3、All airflows are 5% less on side return only installations.

NOTE: To set these setup switches for the appropriate requirement

1. Remove blower door.
2. Locate setup switches on furnace control.
3. Configure the set-up switches as necessary for the application.
4. Replace blower door

6. Air Filter Selection

There are no provisions for an internal filter rack in these furnaces. An external filter is required.

All applications require the use of a field installed filter. All filters and mounting provision must be field supplied. Filters must be installed external to the furnace cabinet. **DO NOT** attempt to install filters inside the furnace.

CABINET WIDTH	FILTER SIZE		FILTER TYPE
	SIDE RETURN	BOTTOM RETURN	
17-1/2"	16 x 25 x 3/4 (406 x 635 x 19)	16 x 25 x 3/4 (406 x 635 x 19)	Washable*
21"	16 x 25 x 3/4 (406 x 635 x 19)	20 x 25 x 3/4 (508 x 635 x 19)	
*Recommended to maintain air filter face velocity. See Product Data for part number.			

1. Air velocity through throwaway type filters may not exceed 300 feet per minute (91.4 m/min). All velocities over this require the use of high velocity filters.

2. Do not exceed 1800 CFM using a single side return and a 16x25 filter. For CFM greater than 1800, you may use two side returns or one side and the bottom or one side return with a transition to allow use of a 20x25 filter.

7. Air Combustion Air/Vent Pipe Sizing

The size of pipe required will be determined by the furnace model, the total length of pipe required and the number of elbows required. The equivalent length of elbows is shown in **Table " Equivalent Length of Fittings"**

Equivalent Length of Fittings						
Pipe Diameter (in):	**2**		**2-1/2**		**3**	
	in	m	in	m	in	m
Long Radius 90° Elbow	3	0.9	3	0.9	3	0.9
Medium Radius 90° Elbow	5	1.5	5	1.5	5	1.5
Mitered 90° Elbow	8	2.4	8	2.4	8	2.4
Long Radius 45° Elbow	1.5	0.5	1.5	0.5	1.5	0.5
Medium Radius 45° Elbow	2.5	0.8	2.5	0.8	2.5	0.8
Mitered 45° Elbow	4	1.2	4	1.2	4	1.2

Table "Maximum Equivalent Pipe Length" lists the maximum equivalent length of pipe allowed for each model of furnace.

Maximum Equivalent Pipe Length			
Altitude (feet)	**Pipe Dia. (in)**	**Unit Size**	
		80	**100**
0-2000	2"	100(30)	50(15m)
	3"	172(53)	150(46m)
2001-3000	2"	90	45
	3"	170	145
3001-4000	2"	85	45
	3"	155	140
4001-5000	2"	80	40
	3"	150	130
5001-6000	2"	70	35
	3"	140	125
6001-7000	2"	65	30
	3"	130	120
7001-8000	2"	55	30
	3"	120	115
8001-9000	2"	50	25
	3"	110	105
9001-10000	2"	40	20
	3"	100	100

8. Gas Supply and Piping

Gas piping must be installed in accordance with national and local codes. Refer to current edition of NFGC in the U.S.A. Refer to current edition of NSCNGPIC in Canada. Installations must be made in accordance with all authorities having jurisdiction. If possible, the gas supply line should be a separate line running directly from meter to furnace.

Refer to Table below for recommended gas pipe sizing. Risers must be used to connect to furnace and to meter. Support all gas piping with appropriate straps, hangers, etc. Use a minimum of one hanger every 6 ft. (2 M). Joint compound (pipe dope) should be applied sparingly and only to male threads of joints. Pipe dope must be resistant to the action of propane gas

Nominal Iron pipe Size In. (mm)	length of pipe --- ft (m)				
	10	20	30	40	50
	(3)	(6)	(9)	(12)	(15)
1/2(13)	175	120	97	82	73
3/4(19)	360	250	200	170	151
1(25)	680	465	375	320	285
1-1/4(32)	1400	950	770	660	580
1-1/2(39)	2100	1460	1180	990	900

9. Electrical Connections

NOTE: Proper polarity must be maintained for 115-v wiring. If polarity is incorrect, the display will report fault code “E4” and furnace will NOT operate. Verify that the voltage, frequency, and phase correspond to that specified on unit rating plate. Also, check to be sure that service provided by utility is sufficient to handle load imposed by this equipment. Refer to rating plate or Table below for equipment electrical specifications.

U.S.A. Installations: Make all electrical connections in accordance with the current edition of the National Electrical Code (NEC) NFPA 70 and any local codes or ordinances that might apply.

Canada Installations: Make all electrical connections in accordance with the current edition of the Canadian Electrical Code CSA C22.1 and any local codes or ordinances that might apply

Unit size	Volts-Hertz-Phase	operating voltage range*		Maximum Unit Amps	Minimum Wire size AWG	Maximum Wire length Ft (m)	Maximum fuse Or CKT BKR Amps
		Maximum*	Minimum*				
80B	115 - 60 - 1	127	104	8	14	29	15
100C	115 - 60 - 1	127	104	14	12	30	20

* Permissible limits of the voltage range at which the unit operates satisfactorily.

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