



BROPG95ESAA

CONDENSING GAS FURNACE

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The BROPG95ESAA Multi-position Condensing Gas Furnace features a single-stage gas valve and a fixed-speeds, constant torque (FCT) ECM blower motor. With an Annual Fuel Utilization Efficiency (AFUE) of up to 96.0% AFUE, this furnace provides added savings over standard gas furnaces. It features 4-way Multi-position installation flexibility, and is available in ten model sizes. All sizes except the 26,000 BTUH model can be vented for direct vent/two-pipe, ventilated combustion air, or single-pipe applications. The 26,000 BTUH model can use the same 2-pipe venting system using outside air for combustion, but is not considered direct-vent. All sizes are design certified in Canada, and select sizes are certified for mobile/manufactured home use with conversion kit accessory.

#### **PERFORMANCE**

- Fixed-speeds, constant torque (FCT) ECM blower motor for electrically efficient operation all year long in heating, cooling and continuous fan operation.
- Single-speed inducer motor, and single-stage gas valve
- Silicon Nitride Hot Surface Igniter.
- Adjustable blower speed for heating and cooling.
- Aluminized-steel primary heat exchanger.
- Stainless-steel condensing secondary heat exchanger.

#### **INSTALLATION FLEXIBILITY**

- 4-way Multi-position design for upflow, downflow or horizontal installation, with unique vent elbow and optional through- the-cabinet downflow venting capability.
- Factory-configured ready for upflow applications.
- Ideal height 35" (889 mm) cabinet: short enough for taller coils, but still allows enough room for service.
- Two-pipe venting, single-pipe venting or ventilated combustion air.

#### **APPLICATIONS**

- Approved for Twinning applications with accessory kit.
- Approved for Manufactured Housing/Mobile Home applications with MH accessory kit.
- Convertible to propane with gas conversion accessory kit.

#### **CERTIFICATIONS**

- All sizes meet ENERGY STAR® Version 4.1 criteria for gas furnaces: 95%+ AFUE.
- Cabinet air leakage less than 2.0% at 1.0 in. W.C. and cabinet air leakage less than 1.4% at 0.5 in. W.C. when tested in accordance with ASHRAE standard 193.
- All sizes can be installed in air quality management districts with a 40 ng/J NOx emissions requirement





#### FEATURES AND BENEFITS

	ING DIM (IN.)	ENSIONS	RATED HEATING	AF UPFLOW/	UE		HEATING	AIRFLOW	COOLING CFM @ 0.5		
FURNACE	н	D	w	OUTPUT <sup>†</sup> BTUH	HORIZON- TAL	DOWN- FLOW	ENERGY STAR®	HEATING CFM‡	HEATING ESP (in. W.C.)	ESP (in. W.C.)	MOTOR HP
BROPG95ESAA30026A	35	29.50	14.20	25,000	96.0%	95.0%	YES	605	0.10	895	1/3
BROPG95ESAA30040A	35	29.50	14.20	39,000	96.0%	95.0%	YES	695	0.10	950	1/2
BROPG95ESAA36040B	35	29.50	17.50	39,000	96.0%	95.0%	YES	650	0.10	1010	1/2
BROPG95ESAA36060A	35	29.50	14.20	58,000	95.0%	95.0%	YES	930	0.12	1120	1/2
BROPG95ESAA42060B	35	29.50	17.50	58,000	96.0%	95.0%	YES	1010	0.12	1330	3/4
BROPG95ESAA48080B	35	29.50	17.50	78,000	96.0%	95.0%	YES	1325	0.12	1665	3/4
BROPG95ESAA60080C	35	29.50	21.00	78,000	96.0%	95.0%	YES	1330	0.12	1855	1
BROPG95ESAA60100C	35	29.50	21.00	97,000	96.0%	95.0%	YES	1730	0.15	2125	1
BROPG95ESAA66120D	35	29.50	24.00	116,000	96.0%	95.0%	YES	2020	0.20	2105	1
BROPG95ESAA66140C	35	29.50	24.00	135,000	95.0%	95.0%	YES	2130	0.20	2310	1

<sup>†</sup> Capacity in accordance with DOE test procedures. Ratings are position dependent. See rating plate. ‡ Heating CFM at factory default blower motor heating tap settings. ESP - External Static Pressure

**Dual Fuel System** — This system can provide more control over your monthly energy bills by automatically selecting the most economical method of heating. Our system automatically switches between the gas furnace and the electric heat pump as outside temperatures change to maintain greater efficiency and comfort than with any traditional single-source heating system. The heat pump also delivers high-efficiency cooling in the summer.

**Robust Igniter** — The unique SiN igniter is not only physically robust but it is also electrically robust. It is capable of running at line voltage and does not require complex voltage regulators as do other brands. This unique feature further enhances the gas furnace reliability and continues a tradition of technology leadership and innovation in providing a reliable and durable product.

**ECM Blower Motor** — This basic ECM, or electronically commutated motor, can provide an efficiency enhancement for select air conditioner or heat pump systems. It uses less electrical power than its PSC counterpart and has 5 speeds.

Reliable Heat Exchanger Design — The aluminized steel, clam shell primary heat exchanger has a crimped, noweld seam create an efficient, robust design for this essential component. The condensing heat exchanger, a stainless steel fin and tube design, is positioned in the furnace to extract additional heat. Stainless steel coupling box componentry between heat exchangers has exceptional corrosion resistance in both natural gas and propane applications.

**Media Filter Cabinet** — Enhanced indoor air quality in the home is made easier with our media filter cabinet accessory (purchased separately). When installed as a part of the system, this cabinet allows for easy and convenient addition of a high efficiency air filter.

**4-Way Multipoise Design** — One model for all applications -there is no need to stock special downflow or horizontal models when one unit will do it all.

**Direct or Single-pipe Venting, or Optional Ventilated Combustion Air** — All sizes except the 26,000 BTUH model can be vented for direct vent/ two-pipe, ventilated combustion air, or single-pipe applications. The 26,000 BTUH model can use the same 2--pipe venting system using outside air for combustion, but is not considered direct--vent.

**Sealed Combustion System** — This furnace brings in combustion air from outside the furnace, which results in especially quiet operation. By sealing the entire combustion vestibule, the entire furnace can be made quieter, not just the burners.

**Insulated Casing** — Foil-faced insulation in the heat exchanger section of the casing minimizes heat loss.

**Monoport Burners** — The burners are specially designed and finely tuned for smooth, quiet combustion and economical operation.

**Bottom Closure** — Factory-installed for side return; easily removable for bottom return. The multi-use bottom closure can also serve for roll-out protection in horizontal applications, and act as the bottom closure for the optional return air base accessory.

**Blower Access Panel Switch** — Automatically shuts off 115-v power to furnace whenever blower access panel is opened.

**Quality Registration** — Our furnaces are engineered and manufactured under a quality management system registered to ISO 9001.



#### **SPECIFICATIONS**

The furnace should be sized to provide 100 percent of the design heating load requirement plus any margin that occurs because of furnace model size capacity increments. None of the furnace model sizes can be used if the heating load is 12,000 BTUH or lower. Use approved engineering method to calculate heating load estimates

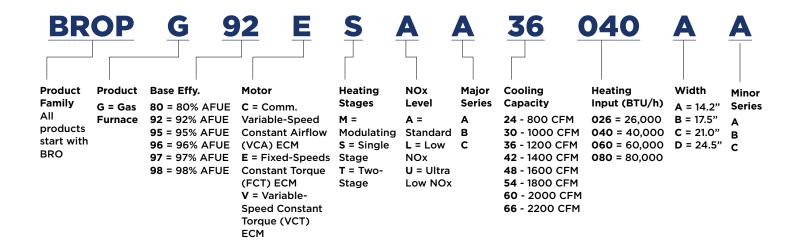
and select the furnace. Excessive oversizing of the furnace may cause the furnace and/or vent to fail prematurely, customer discomfort and/or vent freezing.

Failure to follow these guidelines is considered faulty installation and/or misapplication of the furnace; and resulting failure, damage, or repairs may impact warranty coverage.

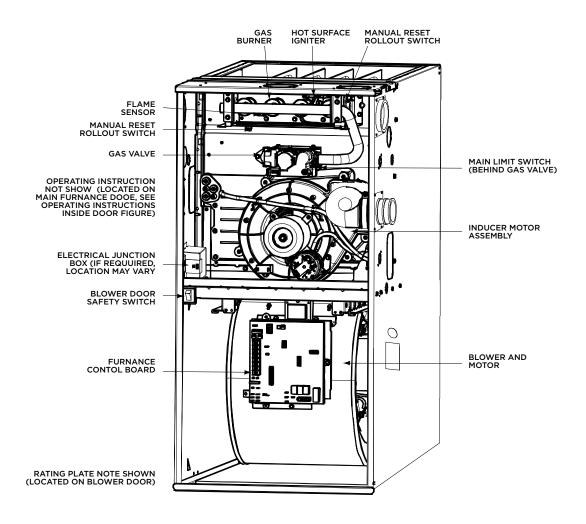
Heating Capacity and Efficiency	30026A	30040A	36040B	36060A	42060B	48080B	60080C	60100C	66120D	66140D
Input (BTUh)	26,000	40,000	40,000	60,000	60,000	80,000	80,000	100,000	120,000	140,000
Output (BTUh)	25,000	39,000	39,000	58,000	58,000	78,000	78,000	97,000	117,000	135,000
Certified Temperature Rise Range °F (°C)	25 - 55 (14 - 31)	40 - 70 (22 - 39)	40 - 70 (22 - 39)	45 - 75 (25 - 42)	40 - 70 (22 - 39)	45 - 75 (25 - 42)				
Airflow Capacity and Blower Data										
Rated External Static Heating	0.10	0.10	0.10	0.12	0.12	0.12	0.12	0.15	0.20	0.20
Pressure (in. w.c.) Cooling	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Airflow Delivery Heating @ Rated ESP (CFM) Cooling	605 895	695 950	650 1010	930 1120	1010 1330	1325 1665	1330 1855	1730 2125	2020 2105	2130 2310
Cooling Capacity (tons) 400 CFM/ton @ CFM/ton 350 CFM/ton	2 2.50	2 2.50	2.5 3	2.5 3	3.5 4	4 4.50	5 5.50	5 6	5 6	5 6
Direct-Drive Motor Type				Elec	tronically Comn	nutated Motor (E	ECM)			
Direct-Drive Motor HP	1/3	1/2	1/2	1/2	3/4	3/4	1	1	1	1
Motor Full Load Amps	4.4	6.3	6.8	6.3	8.8	9.2	11.5	11.7	11.5	11.7
RPM Range	400 - 1200	600 - 2000	400 - 1200	600 - 2000	400 - 1200					
Speed Selections	5	5	5	5	5	5	5	5	5	5
Blower Wheel Dia x Width in.	11 x 7	11 x 7	11 x 8	11 x 7	11 x 8	11 x 8	11 x 10	11 x 10	11 x 11	11 x 11
Air Filtration System					Field Sup	plied Filter				
Filter Used for Certified Watt Data					32553	31-40*				
Electrical Data										
Input Voltage – Volts-Hertz Phase		115-60-1								
Operating Voltage Range – Min-Max		104-127								
Maximum Input Amps Amps	5.1	7.0	7.5	7.1	9.6	10	12.3	12.6	12.4	12.6
Unit Ampacity Amps	7.3	9.7	10.3	9.8	12.9	13.4	16.3	16.7	16.4	16.7
Minimum Wire Size AWG	14	14	14	14	14	14	12	12	12	12
Maximum Wire Length@ Feet Minimum Wire Size (M)	50 (15.5)	38 (11.7)	36 (10.9)	38 (11.5)	28 (8.7)	27 (8.4)	35 (10.7)	34 (10.5)	35 (10.7)	34 (10.5)
Maximum Fuse/Ckt Bkr Amps (Time-Delay Type Recommended)	15	15	15	15	15	15	20	20	20	20
Transfomer Capacity (24vac output)					40	VA				
External Control Heating Power Available Cooling						9 VA 6 VA				
Controls										
Gas Connection Size		1/2" - NPT								
Burners (Monoport)	2	2	2	3	3	4	4	5	6	7
Gas Valve (Redundant) Manufacturer					White	Rodgers				
Minimum Inlet Gas pressure (in. wc)					4.	50				
Maximum Inlet Gas pressure (in. wc)					13	.60				
Manufactured (Mobile) Home Kit					See Access	sory Listing				
Ignition Device					Silicon	Nitride				
Heating Blower Control (Heating Off-Delay)	)			Ad	justable: 90, 12	0, 150, 180 secor	ıds			
Cooling Blower Control (Time Delay Relay)					90 se	conds				
Communication System					No	one				
Thermostat Connections					Com 24V,	R, W, G, Y				
Accessory Connections				EAC (	115vac); HUM (2	4vac); 1-stg AC (	via Y)			



#### MODEL NUMBER NOMENCLATURE



#### **FURNACE COMPONENTS**



#### AIR DELIVERY - CFM (BOTTOM RETURN WITH FILTER)

Quarter   Quar	UNIT SIZE	WIRE LEAD	SPEED TAPS 2,3	EXTERN	AL STATIC PR	ESSURE (IN.)	W.C.)						
Veillow   Alt Cooling or alt Heating   500   770   730   660   530   595   530   480   435   3								0.5	0.6	0.7	0.8	0.9	1.0
Orange	30026A	Black	Cooling. Do not use for heating	1045	1010	975	935	895	855	810	760	715	670
Bilber   Healing or alt Cooling   600		Yellow	Alt Cooling or alt Heating	820	770	730	680	630	585	530	480	435	385
Peef		<b>Orange</b>	Alt Cooling or alt Heating	655	600	550	495	435	385	335	265	-	-
2004.04   Gray   Cooling, Do not use for heating   950   1025   1000   975   950   920   895   870   845   820		Blue <sup>7</sup>	Heating or alt Cooling	605	545	490	435	375	335	255	-	-	_
Vellow	-	Red <sup>7</sup>	Alt Cooling. Do not use for heating	480	415	360	305	235	-	-	-	-	_
Blue   Heating or alt Cooling or alt Heating   755   700   665   630   595   555   525   649   459   455   370	30040A	Gray	Cooling. Do not use for heating	1050	1025	1000	975	950	920	895	870	845	820
Billum   Nearling or alt Cooling   695   660   635   590   5575   515   480   445   405   570		Yellow	Alt Cooling. Do not use for heating	920	890	860	830	805	775	745	715	690	660
Red7		Orange	Alt Cooling or alt Heating	735	700	665	630	595	555	525	490	450	415
Second		Blue	Heating or alt Cooling	695	660	625	590	555	515	480	445	405	370
Yellow   Alt Cooling, Do not use for heating   880   845   810   780   745   710   615   640   600   570		Red7	Alt Cooling. Do not use for heating	540	495	455	410	365	320	280	235	-	_
Blue   Heating or alt Cooling   650   610   560   515   470   435   395   360   325   265	36040B	Gray	Cooling. Do not use for heating	1180	1140	1100	1055	1010	960	915	860	805	735
Oranger   Alt Cooling, Do not use for heating   S15   460   405   350   320   275   210		Yellow	Alt Cooling. Do not use for heating	880	845	810	780	745	710	675	640	600	570
Red   All Cooling, Do not use for heating   125   120   175   1145   1120   1205   1055   1040   1015   990   990   990   965   935   905   880   850   850   880   850   99		Blue	Heating or alt Cooling	650	610	560	515	470	435	395	360	325	265
Section   Property   Cooling, Do not use for heating   1225   1200   1175   1145   1120   1095   1065   1040   1015   990		Orange <sup>7</sup>	Alt Cooling. Do not use for heating	525	460	405	350	320	275	210	-	-	_
Yellow		Red <sup>7</sup>	Alt Cooling. Do not use for heating	515	420	350	310	270	205	-	-	-	_
Blue   Heating or alt Cooling   940   910   875   845   810   775   745   710   680   645	36060A	Gray	Cooling. Do not use for heating	1225	1200	1175	1145	1120	1095	1065	1040	1015	990
Orange		Yellow	Alt Cooling. Do not use for heating	1105	1080	1050	1020	990	965	935	905	880	850
Red		Blue	Heating or alt Cooling	940	910	875	845	810	775	745	710	680	645
Alt Cooling. Do not use for heating   1475   1445   1405   1370   1330   1290   1255   1215   1175   1140		Orange	Alt Cooling or alt Heating	725	690	650	610	570	530	490	445	405	365
Yellow		Red <sup>7</sup>	Alt Cooling. Do not use for heating	545	495	445	395	345	295	245	-	-	
Orange   Alt Cooling or alt Heating   1070   1030   990   950   920   875   840   800   755   715	42060B	Gray	Cooling. Do not use for heating	1475	1445	1405	1370	1330	1290	1255	1215	1175	1140
Orange   Alt Cooling or alt Heating   1070   1030   990   950   920   875   840   800   755   715		Yellow	Alt Cooling or alt Heating	1230	1190	1155	1120	1085	1050	1005	970	925	885
Red		Orange	Alt Cooling or alt Heating	1070	1030	990	950	920	875	840	800	755	715
Red   Red		Blue	Heating or alt Cooling	1020	975	940	900	860	820	775	740	690	650
Yellow   Alt Cooling or alt Heating   1455   1420   1380   1345   1310   1275   1240   1205   1170   1135		Red	Alt Cooling. Do not use for heating	700	590	535	485	460	390	340	300	275	210
Blue   Heating or alt Cooling   1335   1295   1260   1220   1185   1150   1110   1075   1040   1005	48080B	Gray <sup>5, 6</sup>	Cooling. Do not use for heating	1820	1790	1755	1710	1665	1620	1570	1525	1480	1435
Orange   Alt Cooling or alt Heating   1110   1065   1020   980   935   895   850   810   770   725		Yellow	Alt Cooling or alt Heating	1455	1420	1380	1345	1310	1275	1240	1205	1170	1135
Red7		Blue	Heating or alt Cooling	1335	1295	1260	1220	1185	1150	1110	1075	1040	1005
60080C Gray <sup>8, 6</sup> Cooling. Do not use for heating 2045 1995 1950 1900 1855 1805 1760 1710 1660 1615  Yellow Alt Cooling. Do not use for heating 1665 1625 1575 1530 1480 1435 1385 1340 1285 1240  Orange Alt Cooling or alt Heating 1475 1420 1370 1320 1270 1220 1170 1125 1070 1025  Blue Heating or alt Cooling 1345 1290 1235 1180 1130 1080 1025 975 935 885  Red Alt Cooling. Do not use for heating 1155 1080 1015 960 895 845 790 735 675 620  60100C Gray <sup>8, 6</sup> Cooling. Do not use for heating 2280 2240 2200 2165 2125 2085 2020 1910 1795 1665  Yellow <sup>8, 6</sup> Alt Cooling. Do not use for heating 1860 1815 1775 1730 1690 1645 1605 1560 1515 1465  Blue Heating or alt Heating 1755 1710 1665 1620 1580 1535 1485 1440 1390 1340  Orange Alt Cooling. Do not use for heating 1530 1480 1425 1380 1325 1275 1215 1160 1110 1060  Red Cooling. Do not use for heating 1340 1285 1230 1170 1110 1050 990 930 875 820  66120D Gray <sup>8, 6</sup> Cooling. Do not use for heating 2310 2255 2205 2155 2105 2055 2005 1955 1910 1885  Blue <sup>8, 6</sup> Heating or alt Cooling 2065 2020 1970 1915 1860 1580 1580 1530 1475 1420 1360  Orange Alt Cooling. Do not use for heating 1850 1800 1745 1690 1640 1585 1530 1475 1420 1360  Orange Alt Cooling. Do not use for heating 1800 1440 1380 1320 1260 1205 1145 1085 1035 955  Red Alt Cooling. Do not use for heating 2505 2465 2425 2370 2310 2250 2180 2090 1955 1810  Blue <sup>8, 6</sup> Heating or alt Heating 2505 2465 2425 2370 2310 2250 2180 2090 1955 1810  Blue <sup>8, 6</sup> Heating or alt Heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460  Orange Alt Cooling. Do not use for heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460		Orange	Alt Cooling or alt Heating	1110	1065	1020	980	935	895	850	810	770	725
Yellow   Alt Cooling. Do not use for heating   1665   1625   1575   1530   1480   1435   1385   1340   1285   1240		Red7	Alt Cooling. Do not use for heating	425	335	240	-	-	-	-	-	-	_
Orange         Alt Cooling or alt Heating         1475         1420         1370         1320         1270         1220         1170         1125         1070         1025           Blue         Heating or alt Cooling         1345         1290         1235         1180         1130         1080         1025         975         935         885           Red         Alt Cooling. Do not use for heating         1155         1080         1015         960         895         845         790         735         675         620           60100C         Gray <sup>5, 6</sup> Cooling. Do not use for heating         2280         2240         2200         2165         2125         2085         2020         1910         1795         1665           Yellow <sup>5, 6</sup> Alt Cooling. Do not use for heating         1860         1815         1775         1730         1690         1645         1605         1560         1515         1465           Blue         Heating or alt Cooling         1755         1710         1665         1620         1580         1535         1485         1440         1390         1340           Orange         Alt Cooling or alt Heating         1330         1285         1230         1170	60080C	Gray <sup>5, 6</sup>	Cooling. Do not use for heating	2045	1995	1950	1900	1855	1805	1760	1710	1660	1615
Blue Heating or alt Cooling 1345 1290 1235 1180 1130 1080 1025 975 935 885  Red Alt Cooling, Do not use for heating 1155 1080 1015 960 895 845 790 735 675 620  60100C Gray <sup>5, 6</sup> Cooling, Do not use for heating 2280 2240 2200 2165 2125 2085 2020 1910 1795 1665  Yellow <sup>5, 6</sup> Alt Cooling, Do not use for heating 1860 1815 1775 1730 1690 1645 1605 1560 1515 1465  Blue Heating or alt Cooling 1755 1710 1665 1620 1580 1535 1485 1440 1390 1340  Orange Alt Cooling or alt Heating 1530 1480 1425 1380 1325 1275 1215 1160 1110 1060  Red Cooling, Do not use for heating 1340 1285 1230 1170 1110 1050 990 930 875 820  66120D Gray <sup>5, 6</sup> Cooling, Do not use for heating 2310 2255 2205 2155 2105 2055 2005 1955 1910 1885  Blue <sup>5, 6</sup> Heating or alt Cooling 2065 2020 1970 1915 1860 1805 1740 1690 1635 1580  Yellow <sup>5, 6</sup> Alt Cooling, Do not use for heating 1850 1800 1745 1690 1640 1585 1530 1475 1420 1360  Orange Alt Cooling, Do not use for heating 1500 1440 1380 1320 1260 1205 1145 1085 1035 955  Red Alt Cooling, Do not use for heating 1070 960 875 805 710 630 560 490 420 355  66140D Gray <sup>5, 6</sup> Cooling, Do not use for heating 2180 2130 2085 2035 1990 1945 1900 1850 1800 1755  Yellow <sup>5, 6</sup> Heating or alt Heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460  Orange Alt Cooling, Do not use for heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1004		Yellow	Alt Cooling. Do not use for heating	1665	1625	1575	1530	1480	1435	1385	1340	1285	1240
Red         Alt Cooling. Do not use for heating         1155         1080         1015         960         895         845         790         735         675         620           60100C         Gray <sup>8,6</sup> Cooling. Do not use for heating         2280         2240         2200         2165         2125         2085         2020         1910         1795         1665           Yellow <sup>8,6</sup> Alt Cooling. Do not use for heating         1860         1815         1775         1730         1690         1645         1605         1560         1515         1465           Blue         Heating or alt Cooling         1755         1710         1665         1620         1580         1535         1485         1440         1390         1340           Orange         Alt Cooling alt Heating         1530         1480         1425         1380         1325         1275         1215         1160         1110         1060           Red         Cooling. Do not use for heating         1340         1285         1230         1170         1110         1050         990         930         875         820           66120D         Gray <sup>8,6</sup> Cooling. Do not use for heating         2310         2255         220		Orange	Alt Cooling or alt Heating	1475	1420	1370	1320	1270	1220	1170	1125	1070	1025
60100C Gray <sup>8.6</sup> Cooling. Do not use for heating 2280 2240 2200 2165 2125 2085 2020 1910 1795 1665 Yellow <sup>8.6</sup> Alt Cooling. Do not use for heating 1860 1815 1775 1730 1690 1645 1605 1560 1515 1465 Blue Heating or alt Cooling 1755 1710 1665 1620 1580 1535 1485 1440 1390 1340 Orange Alt Cooling or alt Heating 1530 1480 1425 1380 1325 1275 1215 1160 1110 1060 Red Cooling. Do not use for heating 1340 1285 1230 1170 1110 1050 990 930 875 820 G6120D Gray <sup>8.6</sup> Cooling. Do not use for heating 2310 2255 2205 2155 2105 2055 2005 1955 1910 1885 Blue <sup>8.6</sup> Heating or alt Cooling 2065 2020 1970 1915 1860 1805 1740 1690 1635 1580 Yellow <sup>8.6</sup> Alt Cooling or alt Heating 1850 1800 1745 1690 1640 1585 1530 1475 1420 1360 Orange Alt Cooling. Do not use for heating 1500 1440 1380 1320 1260 1205 1145 1085 1035 955 Red Alt Cooling. Do not use for heating 2505 2465 2425 2370 2310 2250 2180 2090 1955 1810 Blue <sup>8.6</sup> Heating or alt Cooling 2180 2130 2085 2035 1990 1945 1900 1850 1800 1755 Yellow <sup>8.6</sup> Alt Cooling. Do not use for heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460 Orange Alt Cooling. Do not use for heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460 Orange Alt Cooling. Do not use for heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460 Orange Alt Cooling. Do not use for heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460		Blue	Heating or alt Cooling	1345	1290	1235	1180	1130	1080	1025	975	935	885
Yellow <sup>5,6</sup> Alt Cooling. Do not use for heating         1860         1815         1775         1730         1690         1645         1605         1560         1515         1465           Blue         Heating or alt Cooling         1755         1710         1665         1620         1580         1535         1485         1440         1390         1340           Orange         Alt Cooling or alt Heating         1530         1480         1425         1380         1325         1275         1215         1160         1110         1060           Red         Cooling. Do not use for heating         1340         1285         1230         1170         1110         1050         990         930         875         820           66120D         Gray <sup>5, 6</sup> Cooling. Do not use for heating         2310         2255         2205         2155         2105         2055         2005         1955         1910         1885           Blue <sup>5, 6</sup> Heating or alt Cooling         2065         2020         1970         1915         1860         1805         1740         1690         1635         1580           Yellow <sup>5, 6</sup> Alt Cooling. Do not use for heating         1800         1745         1690		Red	Alt Cooling. Do not use for heating	1155	1080	1015	960	895	845	790	735	675	620
Blue Heating or alt Cooling 1755 1710 1665 1620 1580 1535 1485 1440 1390 1340  Orange Alt Cooling or alt Heating 1530 1480 1425 1380 1325 1275 1215 1160 1110 1060  Red Cooling. Do not use for heating 1340 1285 1230 1170 1110 1050 990 930 875 820  66120D Gray <sup>5, 6</sup> Cooling. Do not use for heating 2310 2255 2205 2155 2105 2055 2005 1955 1910 1885  Blue <sup>5, 6</sup> Heating or alt Cooling 2065 2020 1970 1915 1860 1805 1740 1690 1635 1580  Yellow <sup>5, 6</sup> Alt Cooling or alt Heating 1850 1800 1745 1690 1640 1585 1530 1475 1420 1360  Orange Alt Cooling. Do not use for heating 1500 1440 1380 1320 1260 1205 1145 1085 1035 955  Red Alt Cooling. Do not use for heating 1070 960 875 805 710 630 560 490 420 355  66140D Gray <sup>5, 6</sup> Cooling. Do not use for heating 2505 2465 2425 2370 2310 2250 2180 2090 1955 1810  Blue <sup>5, 6</sup> Heating or alt Cooling 2180 2130 2085 2035 1990 1945 1900 1850 1800 1755  Yellow <sup>5, 6</sup> Alt Cooling. Do not use for heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460  Orange Alt Cooling. Do not use for heating 1910 1855 1810 1760 1705 1655 1210 1155 1100 1040	60100C	Gray <sup>5, 6</sup>	Cooling. Do not use for heating	2280	2240	2200	2165	2125	2085	2020	1910	1795	1665
Orange         Alt Cooling or alt Heating         1530         1480         1425         1380         1325         1275         1215         1160         1110         1060           Red         Cooling. Do not use for heating         1340         1285         1230         1170         1110         1050         990         930         875         820           66120D         Gray <sup>5, 6</sup> Cooling. Do not use for heating         2310         2255         2205         2155         2105         2055         2005         1955         1910         1885           Blue <sup>5, 6</sup> Heating or alt Cooling         2065         2020         1970         1915         1860         1805         1740         1690         1635         1580           Yellow <sup>5, 6</sup> Alt Cooling or alt Heating         1850         1800         1745         1690         1640         1585         1530         1475         1420         1360           Orange         Alt Cooling. Do not use for heating         1500         1440         1380         1320         1260         1205         1145         1085         1035         955           Red         Alt Cooling. Do not use for heating         2505         2465         2425		Yellow <sup>5, 6</sup>	Alt Cooling. Do not use for heating	1860	1815	1775	1730	1690	1645	1605	1560	1515	1465
Red         Cooling. Do not use for heating         1340         1285         1230         1170         1110         1050         990         930         875         820           66120D         Gray <sup>5, 6</sup> Cooling. Do not use for heating         2310         2255         2205         2155         2105         2055         2005         1955         1910         1885           Blue <sup>5, 6</sup> Heating or alt Cooling         2065         2020         1970         1915         1860         1805         1740         1690         1635         1580           Yellow <sup>5, 6</sup> Alt Cooling or alt Heating         1850         1800         1745         1690         1640         1585         1530         1475         1420         1360           Orange         Alt Cooling. Do not use for heating         1500         1440         1380         1320         1260         1205         1145         1085         1035         955           Red         Alt Cooling. Do not use for heating         1070         960         875         805         710         630         560         490         420         355           66140D         Gray <sup>5, 6</sup> Cooling. Do not use for heating         2505         2465		Blue	Heating or alt Cooling	1755	1710	1665	1620	1580	1535	1485	1440	1390	1340
66120D Gray <sup>5,6</sup> Cooling. Do not use for heating 2310 2255 2205 2155 2105 2055 2005 1955 1910 1885  Blue <sup>5,6</sup> Heating or alt Cooling 2065 2020 1970 1915 1860 1805 1740 1690 1635 1580  Yellow <sup>5,6</sup> Alt Cooling or alt Heating 1850 1800 1745 1690 1640 1585 1530 1475 1420 1360  Orange Alt Cooling. Do not use for heating 1500 1440 1380 1320 1260 1205 1145 1085 1035 955  Red Alt Cooling. Do not use for heating 1070 960 875 805 710 630 560 490 420 355  66140D Gray <sup>5,6</sup> Cooling. Do not use for heating 2505 2465 2425 2370 2310 2250 2180 2090 1955 1810  Blue <sup>5,6</sup> Heating or alt Cooling 2180 2130 2085 2035 1990 1945 1900 1850 1800 1755  Yellow <sup>5,6</sup> Alt Cooling or alt Heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460  Orange Alt Cooling. Do not use for heating 1560 1505 1445 1380 1325 1265 1210 1155 1100 1040		Orange	Alt Cooling or alt Heating	1530	1480	1425	1380	1325	1275	1215	1160	1110	1060
Blue <sup>5,6</sup> Heating or alt Cooling 2065 2020 1970 1915 1860 1805 1740 1690 1635 1580  Yellow <sup>5,6</sup> Alt Cooling or alt Heating 1850 1800 1745 1690 1640 1585 1530 1475 1420 1360  Orange Alt Cooling. Do not use for heating 1500 1440 1380 1320 1260 1205 1145 1085 1035 955  Red Alt Cooling. Do not use for heating 1070 960 875 805 710 630 560 490 420 355  66140D Gray <sup>5,6</sup> Cooling. Do not use for heating 2505 2465 2425 2370 2310 2250 2180 2090 1955 1810  Blue <sup>5,6</sup> Heating or alt Cooling 2180 2130 2085 2035 1990 1945 1900 1850 1800 1755  Yellow <sup>5,6</sup> Alt Cooling or alt Heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460  Orange Alt Cooling. Do not use for heating 1560 1505 1445 1380 1325 1265 1210 1155 1100 1040		Red	Cooling. Do not use for heating	1340	1285	1230	1170	1110	1050	990	930	875	820
Yellow <sup>5,6</sup> Alt Cooling or alt Heating         1850         1800         1745         1690         1640         1585         1530         1475         1420         1360           Orange         Alt Cooling. Do not use for heating         1500         1440         1380         1320         1260         1205         1145         1085         1035         955           Red         Alt Cooling. Do not use for heating         1070         960         875         805         710         630         560         490         420         355           66140D         Gray <sup>5,6</sup> Cooling. Do not use for heating         2505         2465         2425         2370         2310         2250         2180         2090         1955         1810           Blue <sup>5,6</sup> Heating or alt Cooling         2180         2130         2085         2035         1990         1945         1900         1850         1800         1755           Yellow <sup>5,6</sup> Alt Cooling or alt Heating         1910         1855         1810         1760         1705         1655         1605         1555         1505         1460           Orange         Alt Cooling. Do not use for heating         1560         1505         1445	66120D	Gray <sup>5, 6</sup>	Cooling. Do not use for heating	2310	2255	2205	2155	2105	2055	2005	1955	1910	1885
Orange         Alt Cooling. Do not use for heating         1500         1440         1380         1320         1260         1205         1145         1085         1035         955           Red         Alt Cooling. Do not use for heating         1070         960         875         805         710         630         560         490         420         355           66140D         Gray <sup>5,6</sup> Cooling. Do not use for heating         2505         2465         2425         2370         2310         2250         2180         2090         1955         1810           Blue <sup>5,6</sup> Heating or alt Cooling         2180         2130         2085         2035         1990         1945         1900         1850         1800         1755           Yellow <sup>5,6</sup> Alt Cooling or alt Heating         1910         1855         1810         1760         1705         1655         1605         1555         1505         1460           Orange         Alt Cooling. Do not use for heating         1560         1505         1445         1380         1325         1265         1210         1155         1100         1040		Blue <sup>5, 6</sup>	Heating or alt Cooling	2065	2020	1970	1915	1860	1805	1740	1690	1635	1580
Orange         Alt Cooling. Do not use for heating         1500         1440         1380         1320         1260         1205         1145         1085         1035         955           Red         Alt Cooling. Do not use for heating         1070         960         875         805         710         630         560         490         420         355           66140D         Gray <sup>5,6</sup> Cooling. Do not use for heating         2505         2465         2425         2370         2310         2250         2180         2090         1955         1810           Blue <sup>5,6</sup> Heating or alt Cooling         2180         2130         2085         2035         1990         1945         1900         1850         1800         1755           Yellow <sup>5,6</sup> Alt Cooling or alt Heating         1910         1855         1810         1760         1705         1655         1605         1555         1505         1460           Orange         Alt Cooling. Do not use for heating         1560         1505         1445         1380         1325         1265         1210         1155         1100         1040		Yellow <sup>5, 6</sup>	Alt Cooling or alt Heating	1850	1800	1745	1690	1640	1585	1530	1475	1420	1360
Red         Alt Cooling. Do not use for heating         1070         960         875         805         710         630         560         490         420         355           66140D         Gray <sup>5, 6</sup> Cooling. Do not use for heating         2505         2465         2425         2370         2310         2250         2180         2090         1955         1810           Blue <sup>5, 6</sup> Heating or alt Cooling         2180         2130         2085         2035         1990         1945         1900         1850         1800         1755           Yellow <sup>5, 6</sup> Alt Cooling or alt Heating         1910         1855         1810         1760         1705         1655         1605         1555         1505         1460           Orange         Alt Cooling. Do not use for heating         1560         1505         1445         1380         1325         1265         1210         1155         1100         1040		Orange	Alt Cooling. Do not use for heating	1500	1440	1380	1320	1260	1205	1145	1085	1035	955
66140D Gray <sup>5,6</sup> Cooling. Do not use for heating 2505 2465 2425 2370 2310 2250 2180 2090 1955 1810  Blue <sup>5,6</sup> Heating or alt Cooling 2180 2130 2085 2035 1990 1945 1900 1850 1800 1755  Yellow <sup>5,6</sup> Alt Cooling or alt Heating 1910 1855 1810 1760 1705 1655 1605 1555 1505 1460  Orange Alt Cooling. Do not use for heating 1560 1505 1445 1380 1325 1265 1210 1155 1100 1040		Red		1070	960	875					490	420	355
Blue <sup>5,6</sup> Heating or alt Cooling         2180         2130         2085         2035         1990         1945         1900         1850         1800         1755           Yellow <sup>5,6</sup> Alt Cooling or alt Heating         1910         1855         1810         1760         1705         1655         1605         1555         1505         1460           Orange         Alt Cooling. Do not use for heating         1560         1505         1445         1380         1325         1265         1210         1155         1100         1040	66140D	Gray <sup>5, 6</sup>											
Yellow <sup>5,6</sup> Alt Cooling or alt Heating         1910         1855         1810         1760         1705         1655         1605         1555         1505         1460           Orange         Alt Cooling. Do not use for heating         1560         1505         1445         1380         1325         1265         1210         1155         1100         1040		Blue <sup>5, 6</sup>			2130	2085	2035	1990	1945	1900	1850	1800	1755
Orange Alt Cooling. Do not use for heating 1560 1505 1445 1380 1325 1265 1210 1155 1100 1040		Yellow <sup>5, 6</sup>		1910	1855	1810	1760	1705	1655	1605	1555	1505	1460
		Orange		1560	1505	1445	1380	1325	1265	1210	1155	1100	1040
								470			_	-	

NOTE: 1. A filter is required for each return-air inlet. Airflow performance includes a 3/4-in. (19 mm) washable filter media (see accessory list). To determine airflow performance without this filter, assume an additional 0.1 in. w.c. available external static pressure. 2. ADJUST THE BLOWER SPEED TAPS AS NECESSARY FOR THE PROPER AIR TEMPERATURE RISE FOR EACH INSTALLATION. 3. The "Function" column identifies which speed taps can be used for heating. 4. If the same motor speed tap is needed for heating and cooling, a Jumper Wire accessory kit is available, see Product Data accessories for the current. Jumper Wire accessory part number. Reference the "Start-up, Adjustments, and Safety Check" section of installation instructions for further Jumper Wire instructions. 5. Airflows over 1800 CFM require bottom return, two-side return. A minimum filter size of 20" x 25" (508 x 635 mm) is required. 6. For upflow applications, air entering from one side into both the side of the furnace and a return air base counts as a side and bottom return. 7. The "-" entry indicates an unstable operating condition.

### MAXIMUM ALLOWABLE EXPOSED VENT LENGTH IN UNCONDITIONED SPACE

#### Unit Size - 26,000\* BTUH

#### **LENGTH IN FEET**

		Uninsul	ated	3/8" Ins	sulation	1/2" Ins	sulation
	Pipe Dia. In.	1-1/2	2	1-1/2	2	1-1/2	2
Winter	20	20	20	50	45	60	50
Design	0	5	5	25	20	30	25
Temp	-20	-	-	15	10	20	15
٥F	-40	-	-	10	5	15	10

#### Unit Size - 40,000\* BTUH

		Ur	iinsulat	ed	3/8-	in. Insul	ation	1/2-i:	n. Insula	ition	
	Pipe Dia. in.	1-1/2	2	2-1/2	1-1/2	2	2-1/2	1-1/2	2	2-1/2	
Winter	20	20	20	20	20	50	45	20	60	50	
Design	0	10	5	5	20	25	20	20	30	25	
Temp	-20	5	-	-	20	15	10	20	20	15	
° F	-40	-	-	-	15	10	5	15	15	10	

#### Unit Size - 60,000 BTUH

			Unins	ulated		3,	/8-in. I	nsulation		1	I/2-in. I	nsulation		
	Pipe Dia. in.	1-1/2	2	2-1/2	3	1-1/2	2	2-1/2	3	1-1/2	2	2-1/2	3	
Winter	20	20	30	30	25	20	75	65	60	20	85	75	65	
Design	0	15	15	10	10	20	40	30	25	20	45	40	30	
Temp	-20	10	5	-	-	20	25	20	15	20	30	25	20	
° F	-40	5	-	-	-	20	15	15	10	20	20	15	10	

#### Unit Size - 80,000 BTUH

			Uı	ninsulate	d			3/8	3-in. Insula	tion			1/2	-in. Insula	tion	
	Pipe Dia. in.	1-1/2	2	2-1/2	3	4	1-1/2	2	2-1/2	3	4	1-1/2	2	2-1/2	3	4
Winter	20	15	40	40	35	30	15	50	90	75	65	15	50	70	70	70
Design	0	15	20	15	10	5	15	50	45	35	30	15	50	50	40	35
Temp	-20	15	10	5	-	-	15	35	30	20	15	15	40	30	25	15
۰F	-40	10	5	-	-	-	15	25	20	15	5	15	30	25	20	10

#### Unit Size 100,000 BTUH

	•		ated		3	3/8-in. In	sulation			1/2-in. In:	sulation			
	Pipe Dia. in.	2	2-1/2	3	4	2	2-1/2	3	4	2	2-1/2	3	4	
Winter	20	20	50	40	35	20	80	95	80	20	80	105	90	
Design	0	20	20	15	10	20	55	45	35	20	65	55	45	
Temp	-20	15	10	5	-	20	35	30	20	20	45	35	25	
٥F	-40	10	5	-	-	20	25	20	10	20	30	25	15	

#### Unit Size - 120,000 BTUH

		Un	ninsulat	ed	3/8-	in. Insul	ation		1/2-i	in. Insula	ation	
	Pipe Dia. in.	2-1/2	3	4	2-1/2	3	4	2	-1/2	3	4	
Winter	20	10	50	40	10	75	95	10	)	75	105	
Design	0	10	20	15	10	55	45	10	)	65	50	
Temp	-20	10	10	-	10	35	25	10	)	45	30	
۰F	-40	10	5	-	10	25	15	10	)	30	20	

#### Unit Size - 140,000\* BTUH

		Un	insulat	ed	3/8-	in. Insul	ation		1/2-ir	n. Insula	ntion
	Pipe Dia. in.	2-1/2	3	4	2-1/2	3	4	2-	1/2	3	4
Winter	20	5	55	50	5	65	105	5		65	125
Design	0	5	25	15	5	65	50	5		65	60
Temp	-20	5	10	5	5	45	30	5		50	40
۰F	-40	5	5	-	5	30	20	5		35	25

<sup>\*</sup> Not all model families have these sizes



### MAXIMUM ALLOWABLE EXPOSED VENT LENGTH IN UNCONDITIONED SPACE

#### Unit Size - 26,000\* BTUH

#### **LENGTH IN METERS**

		0" Ins	ulation	3/8" In	sulation	1/2" In:	sulation
	Pipe Dia. mm	38	51	38	51	38	51
Winter	-7	6.1	6.1	15.2	13.7	18.3	15.2
Design	-18	1.5	1.5	7.6	6.1	9.1	7.6
Temp	-29	-	-	4.6	3.0	6.1	4.6
٥ (	-40	-	-	3.0	1.5	4.6	3.0

#### Unit Size - 40,000\* BTUH

		ι	Jninsulate	ed	3/8-	in. Insula	tion	1/2-iı	ı. Insula	tion	
	Pipe Dia.mm	38	51	64	38	51	64	38	51	64	
Winter	-7	6.1	6.1	6.1	6.1	15.2	13.7	6.1	18.3	15.2	
Design	-18	3.0	1.5	1.5	6.1	7.6	6.1	6.1	9.1	7.6	
Temp	-29	1.5	-	-	6.1	4.6	3.0	6.1	6.1	4.6	
° C	-40	-	-	-	4.6	3.0	1.5	4.6	4.6	3.0	

#### Unit Size - 60,000 BTUH

			Uninsu	lated		3	/8-in. In	sulation		1	/2-in. In	sulation		
	Pipe Dia. mm	38	51	64	76	38	51	64	76	38	51	64	76	
Winter	-7	6.1	9.1	9.1	7.6	6.1	22.9	19.8	18.3	6.1	25.9	22.9	19.8	
Design	-18	4.6	4.6	3.0	3.0	6.1	12.2	9.1	7.6	6.1	13.7	12.2	9.1	_
Temp	-29	3.0	1.5	-	-	6.1	7.6	6.1	4.6	6.1	9.1	7.6	6.1	_
° C	-40	1.5	-	-	-	6.1	4.6	4.6	3.0	6.1	6.1	4.6	3.0	_

#### Unit Size - 80,000 BTUH

			Uni	nsulate	d			3/8	-in. Insul	lation			1/2-	in. Insula	ation	
	Pipe Dia. mm	38	51	64	76	102	38	51	64	76	102	38	51	64	76	102
Winter	-7	4.6	12.2	12.2	10.7	9.1	4.6	15.2	27.4	22.9	19.8	4.6	15.2	21.3	21.3	21.3
Design	-18	4.6	6.1	4.6	3.0	1.5	4.6	15.2	13.7	10.7	9.1	4.6	15.2	15.2	12.2	10.7
Temp	-29	4.6	3.0	1.5	-	-	4.6	10.7	9.1	6.1	4.6	4.6	12.2	9.1	7.6	4.6
° C	-40	3.0	1.5	-	-	-	4.6	7.6	6.1	4.6	1.5	4.6	9.1	7.6	6.1	3.0

#### Unit Size 100,000 BTUH

	,		Uninsu	lated		3	/8-in. In	sulation			1/2-in. In	sulation	
	Pipe Dia. mm	51	64	76	102	51	64	76	102	51	64	76	102
Winter	-7	6.1	15.2	12.2	10.7	6.1	24.4	28.9	24.4	6.1	24.4	32.0	27.4
Design	-18	6.1	6.1	4.6	3.0	6.1	16.8	13.7	10.7	6.1	19.8	16.7	13.7
Temp	-29	4.6	3.0	1.5	-	6.1	10.7	9.1	6.1	6.1	13.7	10.7	7.6
° (	-40	3.0	1.5	-	-	6.1	7.6	6.1	3.0	6.1	9.1	7.6	4.6

#### Unit Size - 120,000 BTUH

		ι	Jninsulate	d	3/	8-in. Insul	ation	1/2-	in. Insula	tion	
	Pipe Dia. mm	64	76	102	64	76	102	64	76	102	
Winter	-7	3.0	15.2	12.2	3.0	22.9	28.9	3.0	22.9	32.0	
Design	-18	3.0	6.1	4.6	3.0	16.8	13.7	3.0	19.8	15.2	
Temp	-29	3.0	3.0	-	3.0	10.7	7.6	3.0	13.7	9.1	
° (	-40	3.0	1.5	-	3.0	7.6	4.6	3.0	9.1	6.1	

#### Unit Size - 140,000\* BTUH

		l	Jninsulate	d	3/8	-in. Insul	lation	1/2-	in. Insula	tion	
	Pipe Dia. mm	64	76	102	64	76	102	64	76	102	
Winter	-7	1.5	16.7	15.2	1.5	19.8	32.0	1.5	19.8	38.1	
Design	-18	1.5	7.6	4.6	1.5	19.8	15.2	1.5	19.8	18.3	
Temp	-29	1.5	3.0	1.5	1.5	13.7	9.1	1.5	15.2	12.2	
° C	-40	1.5	1.5	-	1.5	9.1	6.1	1.5	35	7.6	

<sup>\*</sup> Not all model families have these sizes



## MAXIMUM EQUIVALENT VENT LENGTH - FT. (M)

#### Table 1 - Maximum Equivalent Vent Length

NOTE: Maximum Equivalent Vent Length (MEVL) includes standard and concentric vent termination and does NOT

include elbows. Use Table 2 - Deductions from Maximum Equivalent Vent Length to determine allowable vent length for each application.

#### Maximum Equivalent Vent Length - Feet

Unit Size		26,0	00²	4	0,000	1		60,0	00²				80,000	)			100,	000		12	0,000	3	14	0,000	\$
	Pipe Dia. (in)	1-1/2	2	1-1/2	2	2-1/2	1-1/2	2	2-1/2	3	1-1/2	2	2-1/2	3	4	2	2-1/2	3	4	2-1/2	3	4	2-1/2	3	4
Altitude	0-2000	70	200	40	155	185	20	100	175	200	15	55	130	175	200	20	80	175	200	10	75	185	5	65	155
(feet)	2001-3000	65	190	35	150	175	20	95	165	185	10	49	125	165	185	15	75	165	185	10	70	175	N/A	60	140
	3001-4000	60	175	30	135	160	16	90	155	175	10	49	115	155	175	15	75	155	175	5	65	165	N/A	60	120
	4001-4500	55	160	25	130	155	15	85	150	170	10	44	110	150	165	10	70	155	170	N/A	60	160	N/A	50	110
	4501-5000	55	160	25	125	145	15	80	145	165	10	44	110	145	160	10	65	150	165	N/A	60	160	N/A	45	100
	5001-6000	50	145	20	120	130	15	75	140	155	10	41	100	135	150	10	65	140	155	N/A	60	155	N/A	35	80
	6001-7000	45	135	15	110	120	13	70	130	145	N/A	38	90	125	140	10	60	135	145	N/A	50	140	N/A	30	65
	7001-8000	40	120	10	100	110	10	65	120	135	N/A	36	90	120	125	N/A	55	125	135	N/A	46	130	N/A	25	45
	8001-9000	35	110	10	90	95	5	60	115	125	N/A	33	80	110	115	N/A	50	115	125	N/A	43	120	N/A	15	30
	9001-10000	30	95	5	80	85	N/A	55	105	115	N/A	30	75	100	105	N/A	45	100	115	N/A	39	115	N/A	10	15

#### Maximum Equivalent Vent Length - Meters

Unit Size		26,0	00²	4	0,000	1		60,0	00²				80,000	)			100	,000		12	0,000	3	14	10,000³	;
	Pipe Dia. (mm)	38	51	38	51	64	38	51	64	76	38	51	64	76	102	51	64	76	102	64	76	102	64	76	102
Altitude	0-610	21.3	60.9	12.1	47.2	56.3	6.0	30.4	53.3	60.9	4.5	16.7	39.6	53.3	60.9	6.0	24.3	53.3	60.9	3.0	22.8	56.3	1.5	19.8	47.2
(meters)	611-914	19.8	57.9	10.6	45.7	53.3	6.0	28.9	50.2	56.3	3.0	14.9	38.1	50.2	56.3	4.5	22.8	50.2	56.3	3.0	21.3	53.3	N/A	18.2	42.6
	915-1219	18.2	53.3	9.1	41.1	48.7	4.8	27.4	47.2	53.3	3.0	14.9	35.0	47.2	53.3	4.5	22.8	47.2	53.3	1.5	19.8	50.2	N/A	18.2	36.5
	1220-1370	16.7	48.7	7.6	39.6	47.2	4.5	25.9	45.7	51.8	3.0	13.4	33.5	45.7	50.2	3.0	21.3	47.25	1.8	N/A	18.2	48.7	N/A	15.2	33.5
	1371-1524	16.7	48.7	7.6	38.1	44.1	4.5	24.3	44.1	50.2	3.0	13.4	33.5	44.1	48.7	3.0	19.8	45.7	50.2	N/A	18.2	48.7	N/A	13.7	30.4
	1525-1829	15.2	44.1	6.0	36.5	39.6	4.5	22.8	42.6	47.2	3.0	12.4	30.4	41.1	45.7	3.0	19.8	42.6	47.2	N/A	18.2	47.2	N/A	10.6	24.3
	1830-2134	13.7	41.1	4.5	33.5	36.5	3.9	21.3	39.6	44.1	N/A	11.5	27.4	38.1	42.6	3.0	18.2	41.1	44.1	N/A	15.2	42.6	N/A	9.1	19.8
	2135-2438	12.1	36.5	3.0	30.4	33.5	3.0	19.8	36.5	41.1	N/A	10.9	27.4	36.5	38.1	N/A	16.7	38.1	41.1	N/A	14.0	39.6	N/A	7.6	13.7
	2439-2743	10.6	33.5	3.0	27.4	28.9	1.5	18.2	35.0	38.1	N/A	10.0	24.3	33.5	35.0	N/A	15.2	35.0	38.1	N/A	13.1	36.5	N/A	4.5	9.1
	2744-3048	9.1	28.9	1.5	24.3	25.9	N/A	16.7	32.0	35.0	N/A	9.1	22.8	30.4	32.0	N/A	13.7	30.4	35.0	N/A	11.8	35.0	N/A	3.0	4.5

#### NOTES:

- 1. 40K Inducer Outlet Restrictor disk (P/N 337683-401; 1.25-in. (32 mm) Dia.) shipped in the loose parts bag or available through Replacement Components required under 10-ft. (3 M) TEVL in all orientations. Required for installations from 0-2000 ft. (0 to 610 M) above sea level. Failure to use an outlet restrictor may result in flame disturbances or flame sense lock-out.
- 2. 26K (shipped in loose parts bag) & 60K Inducer Outlet Restrictor disk (P/N 337683-401; 1.25-in. (32 mm) Dia. available through Replacement Components) required for less than 5-ft. (1.5 M) TEVL in downflow and horizontal orientations only. Required for installations from 0-2000 ft. (0 to 610 M) above sea level.
- 3. 120K & 140K Inducer Outlet Restrictor disk (P/N 337683-402; 1.50-in. (38 mm) Dia. available through Replacement Components) required for less than 5-ft. (1.5 M) TEVL in downflow and horizontal orientations only. Required for installations from 0-2000 ft. (0 to 610 M) above sea level.



#### MAXIMUM EQUIVALENT VENT LENGTH - FT. (M)

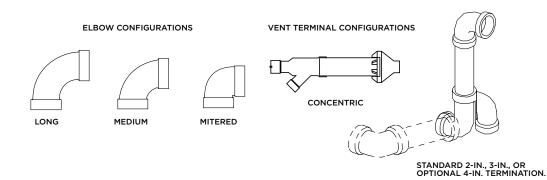


Table 2 - Deductions from Maximum Equivalent Vent Length - Ft. (M)

Pipe Diameter (in):	1-1/2	2	2	!	2	-1/2	3		4	1
Mitered 90° Elbow	8	(2.4)	8	(2.4)	8	(2.4)	8	(2.4)	8	(2.4)
Medium Radius 90° Elbow	5	(1.5)	5	(1.5)	5	(1.5)	5	(1.5)	5	(1.5)
Long Radius 90° Elbow	3	(0.9)	3	(0.9)	3	(0.9)	3	(0.9)	3	(0.9)
Mitered 45° Elbow	4	(1.2)	4	(1.2)	4	(1.2)	4	(1.2)	4	(1.2)
Medium Radius 45° Elbow	2.5	(0.8)	2.5	(8.0)	2.5	(0.8)	2.5	(8.0)	2.5	(0.8)
Long Radius 45° Elbow	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)	1.5	(0.5)
Tee	16	(4.9)	16	(4.9)	16	(4.9)	16	(4.9)	16	(4.9)
Concentric Vent Termination	N/A	N/A	0	(0.0)	N/A	A N/A	0	(0.0)	N/A	N/A
Standard Vent Termination	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)

#### NOTES:

- 1. Use only the smallest diameter pipe possible for venting. Over-sizing may cause flame disturbance or excessive vent terminal icing or freeze-up.
- 2. NA Not allowed. Pressure switch will not close, or flame disturbance may result.
- 3. Vent sizing for Canadian installations over 4500 ft. (1370 M) above sea level are subject to acceptance by the local authorities having jurisdiction.
- 4. Size both the combustion air and vent pipe independently, then use the larger size for both pipes.
- 5. Assume the two  $45^{\circ}$  elbows equal one  $90^{\circ}$  elbow. Wide radius elbows are desirable and may be required in some cases.
- 6. Elbow and pipe sections within the furnace casing and at the vent termination should not be included in vent length or elbow count.
- 7. The minimum pipe length is 5 ft. (2 M) linear feet (meters) for all applications.
- 8. Use 3-in. (76 mm) diameter vent termination kit for installations requiring 4-in. (102 mm) diameter pipe.

#### VENTING SYSTEM LENGTH CALCULATIONS

The Total Equivalent Vent Length (TEVL) for EACH combustion air or vent pipe equals the length of the venting system, plus the equivalent length of elbows used in the venting system from Table 2. Standard vent terminations or factory accessory concentric vent terminations count for zero deduction. See vent system manufacturer's data for equivalent lengths of flexible vent pipe or other termination systems. DO NOT ASSUME that one foot of flexible vent pipe equals one foot of straight PVC/ABS DWV vent pipe.

Compare the Total Equivalent Vent Length to the Maximum Equivalent Vent Lengths in Table 1.

#### Example 1

A direct-vent 60,000 BTUH furnace installed at 2100 ft. (640M). Venting system includes FOR EACH PIPE:

70 feet (22 M) of vent pipe, 65 feet (20 M) of combustion air inlet pipe, (3) 90° long-radius elbows, (2) 45° longradius elbows, and a factory accessory concentric vent kit.

Can this application use 2" (50 mm ND) PVC/ABS DWV vent piping?

Measure the required linear length of air inlet and vent pipe; insert the longest of the two here					70 ft. (22 M)	Use length of the longer of the vent or air inlet piping system
Add equiv length of (3) 90° long-radius elbows (use the highest number of elbows for either the vent or inlet pipe)	3	Х	3 ft. (0.9 M)	=	9 ft. (2.7 M)	From Table 2
Add equiv length of (2) 45° long-radius elbows (use the highest number of elbows for either the vent or inlet pipe)	2	Х	1.5 ft. (0.5 M)	=	3 ft. (0.9 M)	From Table 2
Add equiv length of factory concentric vent term					0 ft.	From Table 2
Add correction for flexible vent pipe, if any					0 ft.	From Vent Manufacturer's instructions; zero for PVC/ABS DWV
Total Equivalent Vent Length (TEVL)					82 ft. (25 M)	Add all of the above lines
Maximum Equivalent Vent Length (MEVL)					95 ft. (29 M)	For 2" pipe from Table 1
Is TEVL less than MEVL?					YES	Therefore, 2" pipe MAY be used

#### **Example 2**

A direct-vent 60,000 BTUH furnace installed at 2100 ft. (640M). Venting system includes FOR EACH PIPE:

100 feet (30 M) of vent pipe, 95 feet (29 M) of combustion air inlet pipe, (3) 90° long-radius elbows, and a polypropylene concentric vent kit. Also includes 20 feet

(6.1 M) of flexible polypropylene vent pipe, included within the 100 feet (30 M) of vent pipe.

VERIFY FROM POLYPROPYLENE VENT MANUFACTURER'S INSTRUCTIONS for the multiplier correction for flexible vent pipe.

Can this application use 60mm o.d. (2") polypropylene vent piping? If not, what size piping can be used?

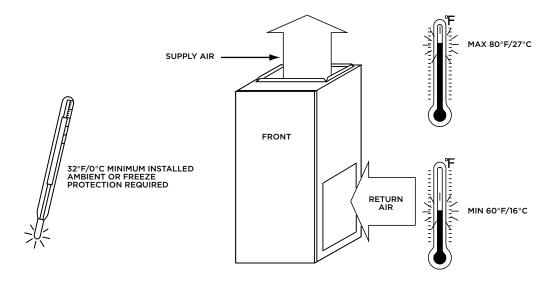
Total Equivalent Vent Length (TEVL)  Maximum Equivalent Vent Length (MEVL)  Is TEVL less than MEVL?  Maximum Equivalent Vent Length (MEVL)					165 ft. (50 M) 95 ft. (29 M) <b>NO</b>	Add all of the above lines  For 2" pipe from Table 2  Therefore, 60mm (2") pipe may NOT be used try 80mm (3")  For 3" pipe from Table 2
Total Equivalent Vent Length (TEVL)  Maximum Equivalent Vent Length (MEVL)					95 ft. (29 M)	Add all of the above lines For 2" pipe from Table 2 Therefore, 60mm (2") pipe may NOT be used
Total Equivalent Vent Length (TEVL)					. ,	Add all of the above lines
			. ,		165 ft. (50 M)	
VERIFI FROM VENT MANOFACTORER 3 INSTRUCTIONS, FOI example only, assume i			. ,			quais 2.0 meters (0.5 m.) of 1 ve/105 pipe.
Add correction for flexible vent pipe, if any  * VERIFY FROM VENT MANUFACTURER'S INSTRUCTIONS; For example only, assume 1	2* meter of fle	x xible 60	20 ft. (6.1 M) mm (2") or 80mm (	= (3") pol	40 ft. (12.2 M) ypropylene pipe e	quals 2.0 meters (6.5 ft.) of PVC/ARS nine
Add equiv length of factory concentric vent term		Х	3.3 ft (0.9 M)	=	30 ft. (9 M)	
(use the highest number of elbows for either the vent or inlet pipe)	9		7.7 ft (0.0 M)		70 ft (0 M)	
Add equiv length of 45° long-radius elbows	0	Х		=	0 ft. (0 M)	
(use the highest number of elbows for either the vent or inlet pipe)	3	Х	5 ft. (1.5 M)	=	15 ft. (4.6 M)	Example from polypropylene vent manufacturer's instructions, Verify from vent manufacturer's instructions.
Add equiv length of (3) 90° long-radius elbows						



#### RETURN AIR TEMPERATURE

This furnace is designed for continuous return-air minimum temperature of 60°F(15°C) db or intermittent operation down to 55°F(13°C) db such as when used with a night

setback thermometer. Return-air temperature must not exceed 80°F(27°C) db. Failure to follow these return air limits may affect reliability of heat exchangers, motors and controls.

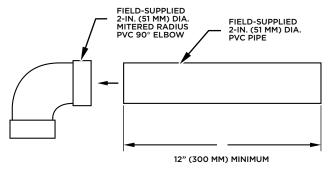


#### MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

POSITION	CLEAR	ANCE
Rear	0	(0 mm)
Front (Combustion air openings in furnace and in structure)	1 in.	(25 mm)
Required for service**	24 in.	(610 mm)*
All Sides of Supply Plenum**	1 in.	(25 mm)
Sides	0	(0 mm)
Vent	0	(0 mm)
Top of Furnace	1 in.	(25 mm)

<sup>\*</sup> Recommended \*\*Consult your local building codes

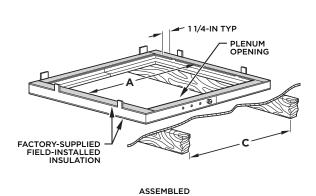
#### COMBUSTION-AIR PIPE FOR NON-DIRECT (1-PIPE) VENT APPLICATION

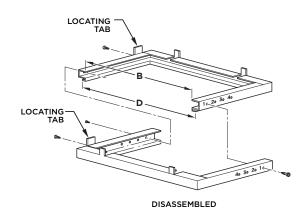


Note: See installation instructions for specific venting configurations.



#### **DOWNFLOW SUBBASE**

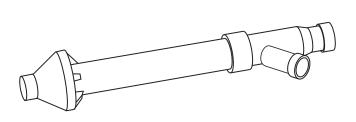




#### **DIMENSIONS (IN. / MM)**

FURNACE	FURNACE IN DOWNFLOW APPLICATION	PLENUM OPENING*	FLOOR OPENING	HOLE NO. FOR
CASING WIDTH		A B	C D	WIDTH ADJUSTMENT
14-3/16	Furnace with or without Cased Coil	11-3/16 19	13-7/16 20-5/8	4
(360)	Assembly or Coil Box	(322) (483)	(341) (600)	
17-1/2	Furnace with or without Cased Coil	15-1/8 19	16-3/4 20-5/8	3
(445)	Assembly or Coil Box	(384) (483)	(426) (600)	
21	Furnace with or without Cased Coil	18-5/8 19	20-1/4 20-5/8	2
(533)	Assembly or Coil Box	(396) (483)	(514) (600)	
24-1/2	Furnace with or without Cased Coil	22-1/8 19	23-3/4 20-5/8	1
(622)	Assembly or Coil Box	(562) (483)	(603) (600)	

<sup>\*</sup>The plenum should be constructed 1/4-in. (6 mm) smaller in width and depth than the plenum dimensions shown above.





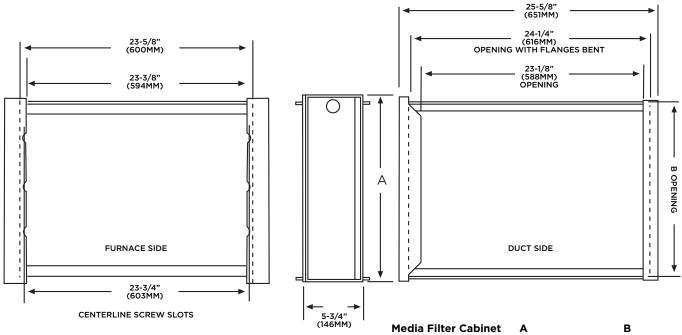
#### **Concentric Vent Kit**

A concentric vent kit allows vent and combustion-air pipes to terminate through a single exit in a roof or side wall. One pipe runs inside the other allowing venting through the inner pipe and combustion air to be drawn in through the outer pipe.

#### **Downflow Subbase**

One base fits all furnace sizes. The base is designed to be installed between the furnace and a combustible floor when no coil box is used or when a coil box other than a cased coil is used. It is CSA design certified for use with a branded furnaces when installed in downflow applications.

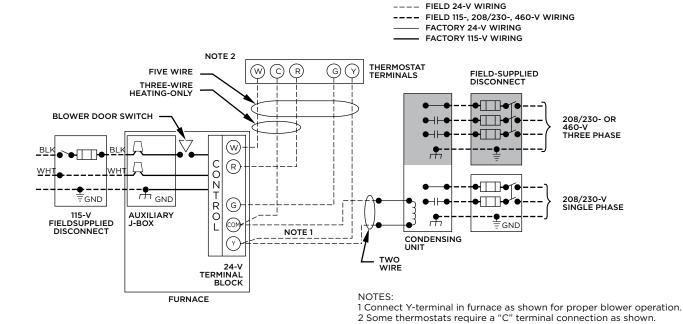
## MEDIA FILTER CABINET (OPTIONAL ACCESSORY)



NOTE: Media cabinet is matched to the bottom opening on furnace. May also be used for side return.

Media Filter Cabillet	^	Ь
16" (406mm)	17" (432mm)	16" (406mm)
20" (508mm)	21" (533mm)	20" (508mm)
24" (610mm)	25" (635mm)	24" (610mm)

#### TYPICAL WIRING SCHEMATIC



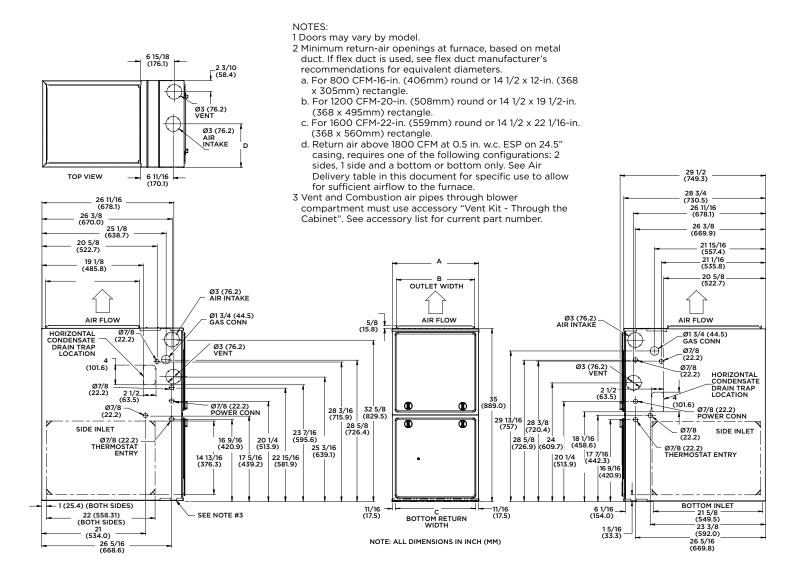


#### 14 | BROPG95ESAA Condensing Gas Furnace

type or equivalent wire.

3 If any of the original wire, as supplied, must be replaced, use same

#### **DIMENSIONAL DRAWING**



FURNACE SIZE	A Cabinet Width	B OUTLET WIDTH	C Bottom inlet width	D AIR INTAKE	SHIP WT. LB (KG)
30026A	14-3/16 (361)	12-1/2 (319)	12-9/16 (322)	7-1/8 (181)	118.0 (53.5)
30040A	14-3/16 (361)	12-1/2 (319)	12-9/16 (322)	7-1/8 (181)	120 (54.4)
36040B	17-1/2 (445)	15-7/8 (403)	16 (406)	8-3/4 (222)	126.5 (57.4)
36060A	14-3/16 (361)	12-1/2 (319)	12-9/16 (322)	7-1/8 (181)	129 (58.5)
42060B	17-1/2 (445)	15-7/8 (403)	16 (406)	8-3/4 (222)	138.5 (62.8)
48080B	17-1/2 (445)	15-7/8 (403)	16 (406)	8-3/4 (222)	146.5 (66.5)
60080C	21 (533)	19-3/8 (492)	19-1/2 (495)	10-1/2 (267)	154.5 (70.1)
60100C	21 (533)	19-3/8 (492)	19-1/2 (495)	10-1/2 (267)	164.5 (74.6)
66120D	24-1/2 (622)	22-7/8 (581)	23 (584)	12-1/4 (311)	179.5 (81.4)
66140D	24-1/2 (622)	22-7/8 (581)	23 (584)	12-1/4 (311)	189 (85.7)



#### **GUIDE SPECIFICATIONS**

#### **General System Description**

4-way multi-position gas-fired condensing furnace for use with natural gas or propane (factory-authorized conversion kit required for propane).

#### **Quality Assurance**

- Unit will be designed, tested and constructed to the current ANSI Z 21.47/CSA 2.3 design standard for gas-fired central furnaces.
- Unit will be third party certified by CSA to the current ANSI Z 21.47/CSA 2.3 design standard for gas-fired central furnaces. Unit will carry the CSA Blue Star® and Blue Flame® labels. Unit efficiency testing will be performed per the current DOE test procedure as listed in the Federal Register.
- Unit will be certified for capacity and efficiency and listed in the latest AHRI Consumer's Directory of Certified Efficiency Ratings.
- Unit will carry the current Federal Trade Commission Energy Guide efficiency label.

#### Delivery, Storage, and Handling

• Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

#### Warranty (for inclusion by specifying engineer)

• U.S. and Canada only.

#### **Equipment**

#### **Blower Wheel and ECM Blower Motor**

• Galvanized blower wheel shall be centrifugal type, statically and dynamically balanced. Blower motor of ECM type shall be permanently lubricated with sealed ball bearings, of \_\_\_\_ hp, and have multiple speeds from 600-1200 RPM operating only when 24-VAC motor inputs are provided. Blower motor shall be direct drive and soft mounted to the blower housing to reduce vibration transmission.

#### **Filters**

•	Furnace	shall have reu	usable-type filters. Filter shall
	be	in.(mm) x	in. (mm). An accessory
	highly e	fficient Media	Filter is available as an option.
		Media Filter.	

#### Casing

 Casing shall be of .030 in. thickness minimum, pre-painted steel.

#### **Draft Inducer Motor**

• Draft inducer motor shall be single-speed PSC design.

#### **Primary Heat Exchangers**

• Primary heat exchangers shall be 3-Pass corrosionresistant aluminized steel of fold-and-crimp sectional design and applied operating under negative pressure.

#### **Secondary Heat Exchangers**

• Secondary heat exchangers shall be of a stainless steel flow-through of fin-and-tube design and applied operating under negative pressure.

#### **Controls**

• Controls shall include a micro-processor-based integrated electronic control board with at least 16 service troubleshooting codes displayed via diagnostic flashing LED light on the control, a self-test feature that checks all major functions of the furnace, and a replaceable automotive-type circuit protection fuse. Multiple operational settings available, including blower speeds for heating and cooling.

#### **Operating Characteristics**

• Heating capacity shall be	Btuh input;	Btuh
output capacity.		

•	Fuel	Gas	Efficiency	/ shall be	AFUE

•	Air delivery shall be	cfm minimum	at 0.50	in
	W.C. external static press	ure.		

•	Dimensions shall b	e: depth	_ in. (mm	າ); width	in.
	(mm); height	in. (mm) (ca	sing only	/). Height sh	all
	be in. (mm) v	vith A/C coil	and	_ in. (mm) ov	/erall
	with plenum.				

#### **Electrical Requirements**

•	Electrical supply shall	be 115 volts, 60	D Hz, single-phase	ļ
	(nominal). Minimum v	vire size shall b	e AWG;	
	maximum fuse size of	HACR-type de	esignated circuit	
	breaker shall be	amps.		

#### Special Features

• Refer to section of the product data.





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