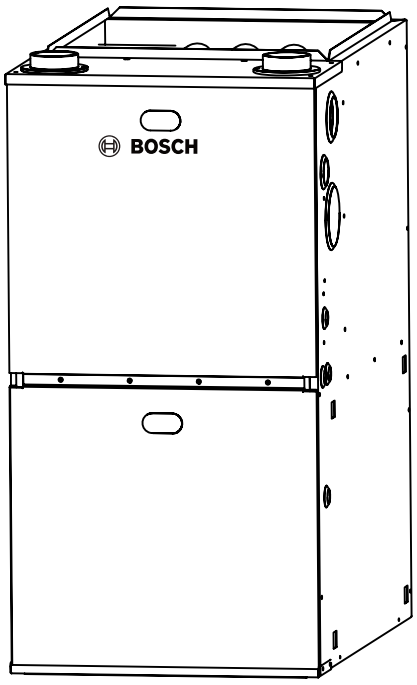
Bosch 96% AFUE Gas Furnace
BGH96 Model

Engineering Submittal Sheet

BOSCH

Overview and Certifications



AHRI CERTIFIED® www.ahridirectory.org
Residential Furnaces DOE 10 CFR Part 430

ETL LISTED C US
Intertek
3124627

ENERGY STAR

Product Features

Standard Features

- Up to 96% AFUE heating efficiency, ENERGY STAR rated
- 5-year parts limited warranty, 20 year heat exchanger limited warranty
- Reliable, proven two-stage design
- Compatibility with the Bosch Connected Control BCC100 Thermostat
- 3-way multipoise design allows for flexibility in multiple types of installations
- Field convertible gas type for hassle-free installation, all furnaces come standard with a natural gas to propane gas conversion kit
- Multi-speed ECM motors for all models for quiet and efficient operation
- Hot-surface ignition for dependable operation
- Durable aluminized steel tubular heat exchanger and stainless-steel (AL 29-4C alloy) secondary heat exchanger
- Pairs with Bosch IDS1.0/2.0 heat pump, reaching up to 19 SEER, meeting heat pump ENERGY STAR requirements for some combinations
- LED fault diagnostics for quick and easy service calls

This product is not to be sold or installed in the State of California in the South Coast Air Quality Management District or San Joaquin Valley Air Basin territory.

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Product Features continued..

Cabinet Features

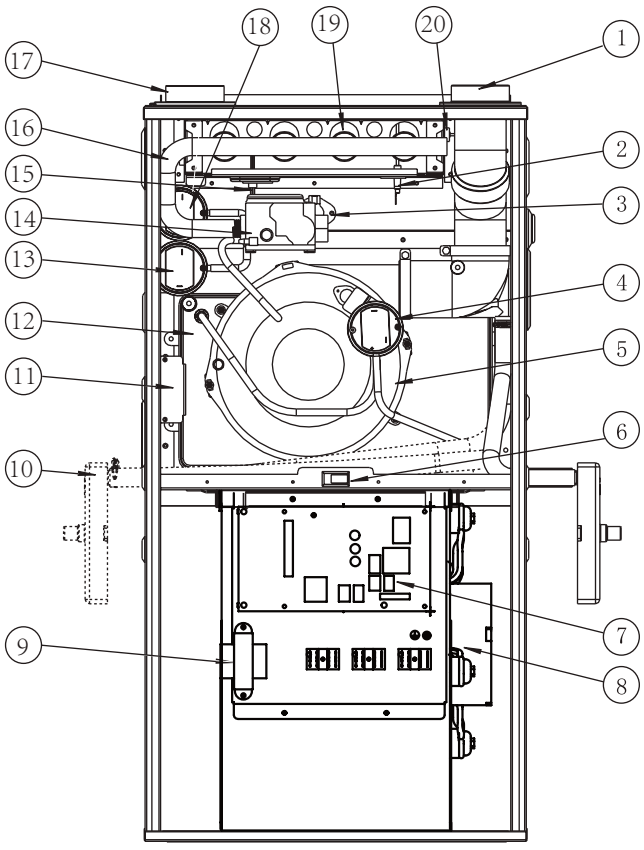
- Low profile (33.75”) cabinet can fit in tight spaces.
- Convenient left or right-hand connection for gas and electric service.
- Anti-rust: Painted, galvanized, 21 gauge steel cabinet, passes a 500 hours salt spray test
- Low noise: Fully insulated (fiberglass insulation) design helps minimize indoor noise levels
- 3-way multipoise design allows for flexibility in multiple types of installations
  - Upflow (side or bottom return)
  - Horizontal

Warranty*

All models installed in one or two family residential dwellings come standard with a 5 year limited warranty on parts and a 20 year limited warranty on primary & secondary heat exchangers. With registration of the product on bosch-climate.us, the 5 year limited warranty on parts shall be upgraded to 10 years, and the 20 year limited warranty on primary & secondary heat exchangers shall be upgraded to lifetime. Furnaces installed in applications other than one or two family residential dwellings will qualify for a 1 year limited warranty on parts and a 10 year limited warranty on the heat exchanger.

* For complete Warranty details please see: https://www.bosch-climate.us/support-center/product-warranty-library/gas-furnace-warranty.html

Key Components



COMPONENT IDENTIFICATION:

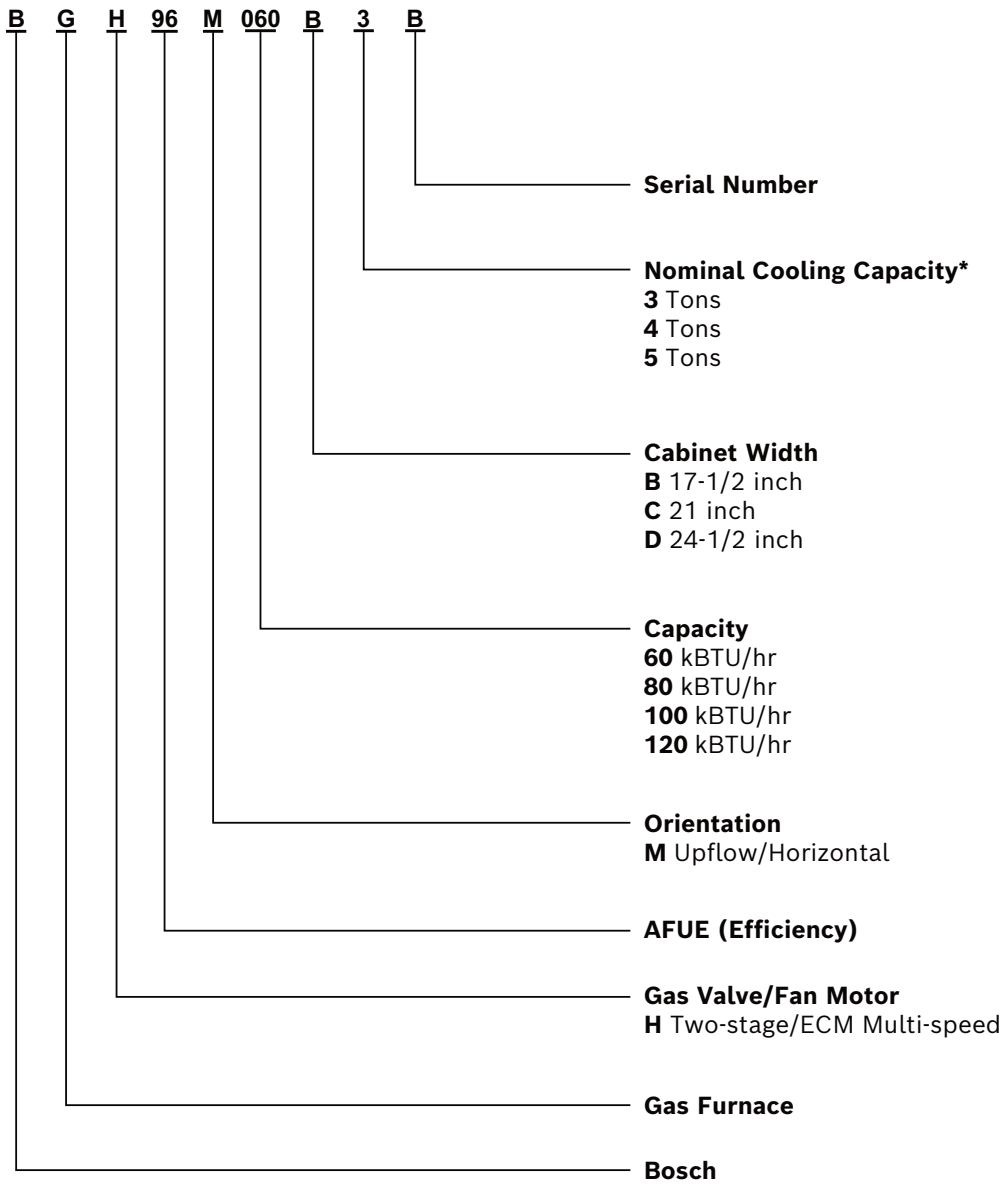
1. Outlet Flue Vent
2. Flame Sensor
3. Chamber Limit Switch-fixed
4. Condensate Overflow Switch
5. Inducer
6. Door Switch
7. Integrated Control Module
8. Blower
9. Transformer
10. Condensate Trap
11. Juction Box
12. Condensate Collector
13. Low Fire Pressure Switch
14. Two-Stage Gas Valve
15. Hot Surface Ignitor
16. Gas Manifold
17. Air Inlet
18. High Fire Pressure Switch
19. Burner
20. Rollout Limit Switch-resettable

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Model Nomenclature



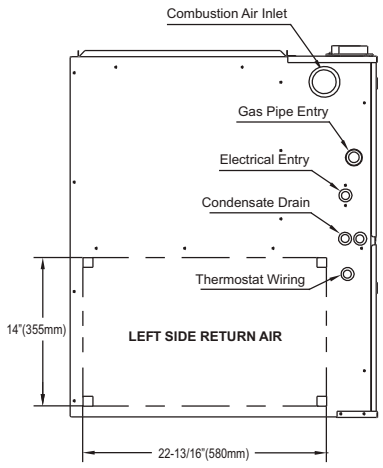
* Nominal 350-400 CFM per 12,000 BTU/hr

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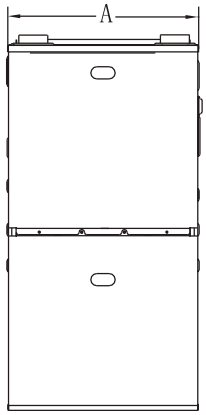
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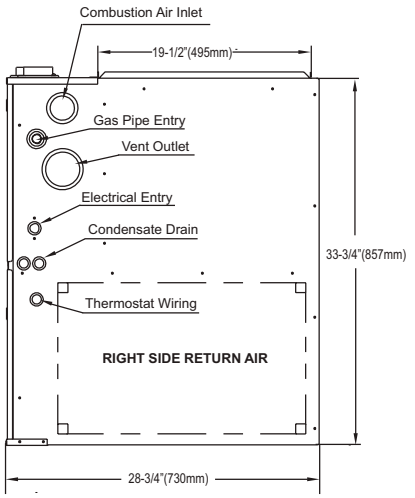
Dimensions and Connections



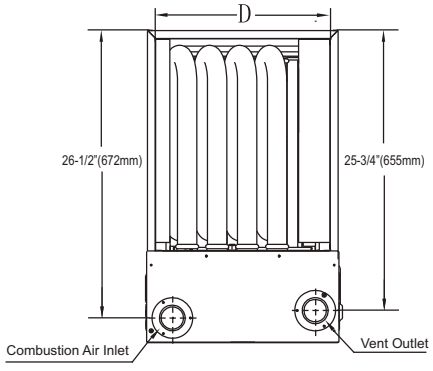
(Left)



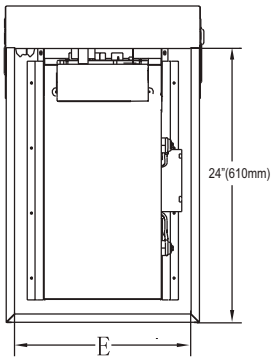
(Front)



(Right)



(Top)



(Bottom with panel removed)

Furnace Model	"A" Cabinet Width In. (mm)	"D" Supply- Air Width In. (mm)	"E" Return- Air Width In. (mm)	Shipping Weight lbs (kgs)
BGH96M060B3B	17.5 (445)	16 (406)	15-27/32 (402)	162.5 (73.7)
BGH96M080B3B	17.5 (445)	16 (406)	15-27/32 (402)	168.5 (76.4)
BGH96M080C4B	21 (533)	19.5 (495)	19-13/32 (493)	184.6 (83.7)
BGH96M100C5B	21 (533)	19.5 (495)	19-13/32 (493)	194.6 (88.3)
BGH96M100D5B	24.5 (622)	23 (584)	22-27/32 (580)	205.1 (93.0)
BGH96M120D5B	24.5 (622)	23 (584)	22-27/32 (580)	209.5 (95.0)

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Bosch 96% AFUE Gas Furnace
BGH96 Model

BOSCH

Technical Specifications

Basic Product Information	Model			**BGH96M060B3B**	**BGH96M080B3B**	**BGH96M080C4B**	**BGH96M100C5B**	**BGH96M100D5B**	**BGH96M120D5B**
	Bosch Part Number			7738007227	7738007228	7738007229	7738007230	7738007231	7738007232
	Fuel Type			Natural Gas/ Propane Gas*	Natural Gas/ Propane Gas*	Natural Gas/ Propane Gas*	Natural Gas/ Propane Gas*	Natural Gas/ Propane Gas*	Natural Gas/ Propane Gas*
ENERGY STAR	ENERGY STAR Certified		Y/N	Y	Y	Y	Y	Y	Y
Gas Heating Performance	AFUE		%	96	96	96	96	96	96
	Input (High fire)	Natural Gas/Propane Gas (LP)	Btu/h	60000	80000	80000	100000	100000	120000
	Input (Low fire)	Natural Gas/Propane Gas (LP)	Btu/h	39000	52000	52000	65000	65000	78000
	Output (High fire)	Natural Gas/Propane Gas (LP)	Btu/h	57000	76000	76000	95000	95000	115000
	Output (Low fire)	Natural Gas/Propane Gas (LP)	Btu/h	37000	49000	49000	62000	62000	75000
	Air Temperature Rise		°F	30-60	35-65	35-65	35-65	35-65	40-70
	Design Max. Outlet Air Temperature		°F	160	165	165	165	165	170
Static Pressure	Certified EXT static pressure	Heating	in. WC	0.12	0.15	0.15	0.2	0.2	0.2
		Cooling	in. WC	0.5	0.5	0.5	0.5	0.5	0.5
Circulating Blower Data	Circulating Blower	Material	-	Metal					
		Type	-	ECM					
		Diameter blower wheel	Inch	12 3/8		12 6/8			
		Height blower wheel	Inch	8		11 1/4			
	Tons AC @ 0.5" ESP		tons	1.5/2/2.5/3	1.5/2/2.5/3	2.5/3/3.5/4	3.5/4/4.5/5	3.5/4/4.5/5	3.5/4/4.5/5
	Circuating Fan Motor	Motor Horsepower	HP	3/4			1		
	Air Flow (0.5 ESP in. WC)	High	CFM	1280	1271	1312	2031	2095	2127
	Air Flow (0.5 ESP in. WC)	Mid-High	CFM	1100	1071	1092	1836	1889	1907
	Air Flow (0.5 ESP in. WC)	Mid	CFM	910	886	894	1573	1609	1620
	Air Flow (0.5 ESP in. WC)	Mid-Low	CFM	690	649	625	1241	1241	1265
	Air Flow (0.5 ESP in. WC)	Low	CFM	500	539	455	820	802	814
	Motor Speeds		# speeds	5**					
			settings	High/Mid-High/Mid/Mid-Low/Low					
			r/min	1050 (rated)					
Inducer Motor	Power Input	(High)	W	63±10%					
	Power Input	(Low)	W	37±10%			42±10%		
Electrical Data	Power supply		V/Hz/PH	115V/60HZ/1PH					
	Max Overcurrent Protection (MOP***)		Amps	15			20		
	Blower motor full load (FLA)		Amps	8	8	7.8	11.5	10.5	10.5

* With factory supplied Natural Gas to LP Conversion Kit

** 5 selectable speeds via wiring, unit operates in two speeds in concert with HI/LOW fire operation

*** MOP refers to the maximum recommended fuse or breaker size.

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Technical Specifications Continued

Model				BGH96M060B3B	BGH96M080B3B	BGH96M080C4B	BGH96M100C5B	BGH96M100D5B	BGH96M120D5B
Combustion System Specifications	Max. Inlet Gas Press	Natural Gas	in. WC	10.5					
		Propane Gas (LP)	in. WC	13					
	Min. Inlet Gas Press	Natural Gas	in. WC	4.5					
		Propane Gas (LP)	in. WC	11					
	Natural Gas Manifold Pressure (High fire)		in. WC	3.5					
	Natural Gas Manifold Pressure (Low fire)		in. WC	1.6					
	Propane Gas Manifold Pressure (High fire)		in. WC	10					
	Propane Gas Manifold Pressure (Low fire)		in. WC	4					
	Natural Gas Factory Orifice (0-2000 feet)		#	45					
	Propane Gas (LP) Factory Orifice (0-2000 feet)*		#	55					
	Gas Connection Size		in. NPT	1/2					
	Igniton Device		-	Hot surface					
	Number of Burners		#	3	4	4	5	5	6
	Primary Heat Exchanger Diameter		Inch	1 6/8					
	Primary Heat Exchanger		# tubes	3	4	4	5	5	6
	Secondary Heat Exchanger Diameter		Inch	3/8					
	Secondary Heat Exchanger		# tubes	33	33	39	39	48	48
	Flue Vent Diameter		Inch	2“/3”	2“/3”	2“/3”	2“/3”	2“/3”	3”
Dip Switches	Heating Blower Control (Heating Off-Delay)		-	Adjustable: 90, 120, 150, 180 seconds					
	Cooling Blower Control (Cool Off-Delay)		-	Adjustable: 60, 90, 120, 150 seconds					
	Upstage W1 to W2 Delay		-	Adjustable: OFF, 10 minutes, AUTO, 20 minutes					
Cabinet Size	Cabinet Type		-	B	B	C	C	D	D
	Cabinet Size	Width	Inch	17.5	17.5	21	21	24.5	24.5
	Cabinet Size (DxH)	(DxH)	Inch	(28-3/4)*(33-3/4)	(28-3/4)*(33-3/4)	(28-3/4)*(33-3/4)	(28-3/4)*(33-3/4)	(28-3/4)*(33-3/4)	(28-3/4)*(33-3/4)
Shipping Data	Packing Dimension (without pallet)	(WxDxH)	Inch	(20)*(31)*(35-1/2)	(20)*(31)*(35-1/2)	(23-1/2)*(31)*(35-1/2)	(23-1/2)*(31)*(35-1/2)	(27)*(31)*(35-1/2)	(27)*(31)*(35-1/2)
	Packing Dimension (with pallet)	(WxDxH)	Inch	(20)*(31)*(40)	(20)*(31)*(40)	(23-1/2)*(31)*(40)	(23.5)*(31)*(40)	(27)*(31)*(40)	(27)*(31)*(40)
	Net Weight (unit only)		lbs	135	141	152	162	169.6	174
	Gross Weight (shipping weight with pallet & packaging)		lbs	162.5	168.5	184.6	194.6	205.1	209.5

*All Bosch 96% AFUE Gas Furnaces come standard with Natural Gas to LP Conversion Kits. These kits are only applicable for units installed at elevations between 0 and 2,000 feet.

For LP applications above 2000 ft elevation, the manifold and inlet gas pressure requirements remain the same as stated in this manual, the only change is to the orifices used. Refer Tables 14 & 15 in Section 9.2 of the Installation, Operation, and Maintenance Manual to determine which orifice to use based on your application.

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This furnace is designed for minimum continuous return-air temperature of 60°F (16°C) (DBT) or intermittent operation down to 55°F (13°C) (DBT) such as when used with a night setback thermostat. Return-air temperature must not exceed 85°F (29°C) (DBT). Failure to follow these return-air temperature limits may affect reliability of heat exchangers, motors, and controls.

Maximum shipment stacking may not exceed 3 units high (120").

This furnace is not approved for installation in mobile homes, recreational vehicles, or outdoors.

Inlet gas supply pressures must be maintained within the ranges specified above. The supply pressure must be constant and available with all other household gas fired appliances operating. The minimum gas supply pressure must be maintained to prevent unreliable ignition. The maximum must not be exceeded to prevent unit overfiring.

IDS Light + Cased Coil + 96% Furnace AHRI 210/240 System Performance Data

System Tonnage	Outdoor Unit	Indoor Unit		Cooling Capacity			Heating Capacity			CFM
		Coils/Air Handlers	Furnace model	Total (BTU/h)	EER[2]	SEER[1]	Hi (BTU/h)	HSPF[3]	Low (BTU/h)	
2	BOVA-24HDN1-M15G	BMAC2430ANTD	BGH96M060B3B	23600	11.5	16.5	24000	9	17600	720/630
	BOVA-24HDN1-M15G	BMAC2430ANTD	BGH96M080B3B	23600	11.5	16.5	24000	9	17600	700/610
	BOVA-24HDN1-M15G	BMAC2430BNTD	BGH96M060B3B	24000	11.5	16.5	24000	9.0	17600	720/630
	BOVA-24HDN1-M15G	BMAC2430BNTD	BGH96M080B3B	24000	11.5	16.5	24000	9.0	17600	700/610
3	BOVA-36HDN1-M15G	BMAC3036ANTD	BGH96M060B3B	33000	10.0	16.5	34200	8.8	23000	1000/750
	BOVA-36HDN1-M15G	BMAC3036ANTD	BGH96M080B3B	33000	10.0	16.5	34200	8.8	23000	1000/750
	BOVA-36HDN1-M15G	BMAC3036BNTD	BGH96M060B3B	33600	10.0	16.5	34200	9	23000	1050/770
	BOVA-36HDN1-M15G	BMAC3036BNTD	BGH96M080B3B	33600	10.0	16.5	34200	9	23000	1050/770
	BOVA-36HDN1-M15G	BMAC3036CNTD	BGH96M080C4B	33600	10.0	16.5	34200	9	23000	1030/750
	BOVA-36HDN1-M15G	BMAC3036CNTD	BGH96M100C5B	34000	10.0	16.5	34200	9	23000	1150/750
4	BOVA-60HDN1-M15G	BMAC4248BNTF	BGH96M080B3B	43000	10.0	16.5	45000	9	31000	1250/1050
	BOVA-60HDN1-M15G	BMAC4248CNTF	BGH96M080C4B	43000	10.5	16.5	45000	9	31000	1250/1050
	BOVA-60HDN1-M15G	BMAC4248CNTF	BGH96M100C5B	45000	10.5	16.5	46500	9	32000	1470/1200
	BOVA-60HDN1-M15G	BMAC4248DNTF	BGH96M100D5B	45500	11	16.5	47000	9	32000	1500/1200
	BOVA-60HDN1-M15G	BMAC4248DNTF	BGH96M120D5B	45500	10.5	16.5	47000	9	32000	1500/1200
5	BOVA-60HDN1-M15G	BMAC4860CNTF	BGH96M100C5B	53000	9.5	16.0	53500	9	38000	1660/1150
	BOVA-60HDN1-M15G	BMAC4860DNTF	BGH96M100D5B	53500	10.0	16.5	54000	9	38000	1700/1200
	BOVA-60HDN1-M15G	BMAC4860DNTF	BGH96M120D5B	53500	10	16.5	54000	9.0	38000	1700/1200

[1] Seasonal Energy Efficiency Ratio; Certified per AHRI 210/240

[2] Energy Efficiency Ratio; Certified per AHRI 210/240

[3] HSPF = Heating Seasonal Performance Factor; Certified per AHRI 210/240

☐ Items in **bold** boxes meet the requirements for ENERGY STAR v5.0

***** corresponds to both BOVA and BOVB outdoor units

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IDS Premium + Cased Coil + 96% Furnace AHRI 210/240 System Performance Data

Nominal HP System Tonnage	Outdoor Unit Model	Indoor Unit Model	Furnace Model	Cooling Capacity (BTU/h)			Heating Capacity			CFM
		Coils/Air Handlers		Total	EER[2]	SEER[1]	Hi	HSPF[3]	Low[4]	
2	BOVA-36HDN1-M20G	BMAC2430ANTD	BGH96M060B3B	24000	13	18.5	24000	10	18000	820/630
	BOVA-36HDN1-M20G	BMAC2430ANTD	BGH96M080B3B	24000	13	18.5	24000	10	18000	800/580
	BOVA-36HDN1-M20G	BMAC2430BNTD	BGH96M060B3B	24000	13.5	19	24000	10	19000	860/680
	BOVA-36HDN1-M20G	BMAC2430BNTD	BGH96M080B3B	24000	13.5	19	24000	10	19000	840/630
3	BOVA-36HDN1-M20G	BMAC3036ANTD	BGH96M060B3B	32200	11.2	17	34000	10	25000	1050/800
	BOVA-36HDN1-M20G	BMAC3036ANTD	BGH96M080B3B	32200	11.2	17	34000	10	25000	1020/800
	BOVA-36HDN1-M20G	BMAC3036BNTD	BGH96M060B3B	33000	11.6	17.5	34200	10	25000	1100/850
	BOVA-36HDN1-M20G	BMAC3036BNTD	BGH96M080B3B	33000	11.6	17.5	34200	10	25000	1070/850
	BOVA-36HDN1-M20G	BMAC3036CNTD	BGH96M080C4B	33600	12	18	34200	10	25000	1050/820
	BOVA-36HDN1-M20G	BMAC3036CNTD	BGH96M100C5B	33600	12	18	34200	10	25000	1150/750
	BOVA-36HDN1-M20G	BMAC4248BNTF	BGH96M080B3B	33000	12.5	18.5	34200	10	26000	1000/850
	BOVA-36HDN1-M20G	BMAC4248CNTF	BGH96M100C5B	33000	12.5	18.5	34200	10	26000	1100/800
4	BOVA-60HDN1-M20G	BMAC4248BNTF	BGH96M080B3B	43000	11.2	18	45000	9.5	34000	1250/1050
	BOVA-60HDN1-M20G	BMAC4248CNTF	BGH96M080C4B	44000	12	18.5	46000	10	35000	1250/1050
	BOVA-60HDN1-M20G	BMAC4248CNTF	BGH96M100C5B	45000	12.5	18.5	46500	10	35000	1450/1150
	BOVA-60HDN1-M20G	BMAC4248DNTF	BGH96M100D5B	45500	12.5	18.5	47000	10	35000	1500/1200
	BOVA-60HDN1-M20G	BMAC4248DNTF	BGH96M120D5B	45500	12.5	18.5	47000	10	35000	1500/1200
5	BOVA-60HDN1-M20G	BMAC4860CNTF	BGH96M100C5B	52000	12	18	53500	10	37000	1450/1150
	BOVA-60HDN1-M20G	BMAC4860DNTF	BGH96M100D5B	52000	12.5	18.5	54000	10	38000	1500/1200
	BOVA-60HDN1-M20G	BMAC4860DNTF	BGH96M120D5B	52000	12.5	18.5	54000	10	38000	1500/1200

[1] Seasonal Energy Efficiency Ratio; Certified per AHRI 210/240

[2] Energy Efficiency Ratio; Certified per AHRI 210/240

[3] HSPF = Heating Seasonal Performance Factor; Certified per AHRI 210/240

[4] Jumper cut or dip switch off

Items in **bold** boxes meet the requirements for ENERGY STAR v5.0

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IDS Light + Cased Coil + 96% Furnace AHRI 210/240 - 2023 System Performance Data

Nominal HP System Tonnage	Outdoor Unit Model	Indoor Unit Model	Furnace Model	Cooling Capacity (BTU/h)			Heating Capacity			CFM
		Coils/Air Handlers		Total	EER2[2]	SEER2[1]	Hi	HSPF2[3]	Low[4]	
2	BOVA-24HDN1-M15G	BMAC2430ANTD	BGH96M060B3B	23600	10.5	16	24000	8	17600	750/560
	BOVA-24HDN1-M15G	BMAC2430ANTD	BGH96M080B3B	23600	10.5	16	24000	8	17600	750/560
	BOVA-24HDN1-M15G	BMAC2430BNTD	BGH96M060B3B	24000	10.5	16	24000	8	17600	750/560
	BOVA-24HDN1-M15G	BMAC2430BNTD	BGH96M080B3B	24000	10.5	16	24000	8	17600	750/560
3	BOVA-36HDN1-M15G	BMAC3036ANTD	BGH96M060B3B	33000	9	15.5	34200	7.8	23000	1050/750
	BOVA-36HDN1-M15G	BMAC3036ANTD	BGH96M080B3B	33000	9	15.5	34200	7.8	23000	1050/750
	BOVA-36HDN1-M15G	BMAC3036BNTD	BGH96M060B3B	33600	9	15.5	34200	7.8	23000	1050/780
	BOVA-36HDN1-M15G	BMAC3036BNTD	BGH96M080B3B	33600	9	15.5	34200	7.8	23000	1050/780
	BOVA-36HDN1-M15G	BMAC3036CNTD	BGH96M080C4B	33600	9	15.5	34200	7.8	23000	1050/780
	BOVA-36HDN1-M15G	BMAC3036CNTD	BGH96M100C5B	33600	9	15.5	34200	7.8	23000	1050/650
4	BOVA-36HDN1-M15G	BMAC4248BNTF	BGH96M080B3B	33600	9	15.5	34200	7.8	23000	1050/780
	BOVA-36HDN1-M15G	BMAC4248CNTF	BGH96M100C5B	33600	9	15.5	34200	7.8	23000	1050/650
	BOVA-60HDN1-M15G	BMAC4248BNTF	BGH96M080B3B	43000	9	16	44000	7.8	30000	1100/950
	BOVA-60HDN1-M15G	BMAC4248CNTF	BGH96M080C4B	43000	9.5	16	44000	7.8	30000	1150/950
	BOVA-60HDN1-M15G	BMAC4248CNTF	BGH96M100C5B	45000	9.5	16	47000	7.8	32000	1600/1100
	BOVA-60HDN1-M15G	BMAC4248DNTF	BGH96M100D5B	45500	9.5	16	47000	7.8	32000	1600/1100
	BOVA-60HDN1-M15G	BMAC4248DNTF	BGH96M120D5B	45500	9.5	16	47000	7.8	32000	1600/1100
5	BOVA-60HDN1-M15G	BMAC4860CNTF	BGH96M100C5B	53000	9	15.5	53500	8	38000	1700/1350
	BOVA-60HDN1-M15G	BMAC4860DNTF	BGH96M100D5B	53500	9.5	15.5	54000	8	38000	1700/1400
	BOVA-60HDN1-M15G	BMAC4860DNTF	BGH96M120D5B	53500	9.5	15.5	54000	8	38000	1700/1400

[1] Seasonal Energy Efficiency Ratio 2; Certified per AHRI 210/240

[2] Energy Efficiency Ratio 2; Certified per AHRI 210/240

[3] HSPF2 = Heating Seasonal Performance Factor; Certified per AHRI 210/240

[4] Jumper cut or dip switch off

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IDS Plus + Cased Coil + 96% Furnace AHRI 210/240 - 2023 System Performance Data

Nominal HP System Tonnage	Outdoor Unit Model	Indoor Unit Model	Furnace Model	Cooling Capacity (BTU/h)			Heating Capacity			CFM
		Coils/Air Handlers		Total	EER2[2]	SEER2[1]	Hi	HSPF2[3]	Low[4]	
2	BOVB-36HDN1-M18M	BMAC2430ANTD	BGH96M060B3B	23600	11.5	16	24000	8	18600	740/540
	BOVB-36HDN1-M18M	BMAC2430ANTD	BGH96M080B3B	23600	11.5	16	24000	8	18600	750/560
	BOVB-36HDN1-M18M	BMAC2430BNTD	BGH96M060B3B	23800	11.7	16	24000	8	18800	760/550
	BOVB-36HDN1-M18M	BMAC2430BNTD	BGH96M080B3B	24000	11.7	16	24000	8	19000	750/560
3	BOVB-36HDN1-M18M	BMAC3036ANTD	BGH96M060B3B	32400	9.4	16	34200	8	22800	1090/840
	BOVB-36HDN1-M18M	BMAC3036ANTD	BGH96M080B3B	32400	9.4	16	34200	8	22800	1050/840
	BOVB-36HDN1-M18M	BMAC3036BNTD	BGH96M060B3B	32600	9.5	16	34200	8	23000	1120/870
	BOVB-36HDN1-M18M	BMAC3036BNTD	BGH96M080B3B	32600	9.5	16	34200	8	23000	1060/850
	BOVB-36HDN1-M18M	BMAC3036CNTD	BGH96M080C4B	32800	9.5	16	34200	8	23000	1100/870
	BOVB-36HDN1-M18M	BMAC3036CNTD	BGH96M100C5B	32800	9.5	16	34200	8	23000	1000/780
4	BOVB-60HDN1-M18M	BMAC4248BNTF	BGH96M080B3B	43000	10.5	16.5	45500	8	33000	1120/880
	BOVB-60HDN1-M18M	BMAC4248CNTF	BGH96M080C4B	43000	10.8	17	45500	8	33000	1130/900
	BOVB-60HDN1-M18M	BMAC4248CNTF	BGH96M100C5B	44500	10.8	17.5	47000	8	34000	1370/1150
	BOVB-60HDN1-M18M	BMAC4248DNTF	BGH96M100D5B	45000	11	17.5	47000	8	34200	1480/1200
	BOVB-60HDN1-M18M	BMAC4248DNTF	BGH96M120D5B	45000	11	17.5	47000	8	34200	1480/1200
5	BOVB-60HDN1-M18M	BMAC4860CNTF	BGH96M100C5B	53000	9.5	17	55000	8.5	37200	1590/1150
	BOVB-60HDN1-M18M	BMAC4860DNTF	BGH96M100D5B	53500	10	17.5	55000	8.5	37400	1590/1150
	BOVB-60HDN1-M18M	BMAC4860DNTF	BGH96M120D5B	53500	10	17.5	55000	8.5	37400	1590/1150

[1] Seasonal Energy Efficiency Ratio 2; Certified per AHRI 210/240

[2] Energy Efficiency Ratio 2; Certified per AHRI 210/240

[3] HSPF2 = Heating Seasonal Performance Factor; Certified per AHRI 210/240

[4] Jumper cut or dip switch off

☐ Items in **bold** boxes meet the requirements for ENERGY STAR v6.1

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Bosch 96% AFUE Gas Furnace
BGH96 Model

IDS Premium/IDS Premium Connected + Cased Coil + 96% Furnace AHRI 210/240 - 2023 System Performance Data

Nominal HP System Tonnage	Outdoor Unit Model	Indoor Unit Model	Furnace Model	Cooling Capacity (BTU/h)			Heating Capacity			CFM	
		Coils/Air Handlers		Total	EER2[2]	SEER2[1]	Hi	HSPF2[3]	Low[4]		
2	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC2430ANTD	BGH96M060B3B	23800	12	18	24000	9	19600	740/540	❄
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC2430ANTD	BGH96M080B3B	23800	12	18	24000	9	19600	750/560	❄
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC2430BNTD	BGH96M060B3B	24000	12	18.5	24000	9	20000	760/550	❄
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC2430BNTD	BGH96M080B3B	24000	12	18.5	24000	9	20000	750/560	❄
3	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC3036ANTD	BGH96M060B3B	32800	10.6	17.5	34000	9	25000	1090/840	
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC3036ANTD	BGH96M080B3B	32800	10.6	17.5	34000	9	25000	1050/840	
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC3036BNTD	BGH96M060B3B	33600	11	17.5	34200	9	25000	1120/870	
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC3036BNTD	BGH96M080B3B	33600	11	17.5	34200	9	25000	1060/850	
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC3036CNTD	BGH96M080C4B	33600	11	17.5	34200	9	25000	1100/870	
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC3036CNTD	BGH96M100C5B	33200	11.2	17.5	34200	9	25000	1000/780	
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC4248BNTF	BGH96M080B3B	33000	11.2	18.5	34200	9	25600	1100/880	
	BOVA-36HDN1-M20G/ BOVB-36HDN1-M20G	BMAC4248CNTF	BGH96M100C5B	33000	12	18.5	34200	9	25600	1060/840	❄
4	BOVA-60HDN1-M20G/ BOVB-60HDN1-M20G	BMAC4248BNTF	BGH96M080B3B	42500	11.7	17	43500	8.8	35000	1120/880	❄
	BOVA-60HDN1-M20G/ BOVB-60HDN1-M20G	BMAC4248CNTF	BGH96M080C4B	42500	11.7	17	44500	8.8	35000	1130/900	❄
	BOVA-60HDN1-M20G/ BOVB-60HDN1-M20G	BMAC4248CNTF	BGH96M100C5B	45000	11.7	17.5	46500	8.8	35600	1370/1150	
	BOVA-60HDN1-M20G/ BOVB-60HDN1-M20G	BMAC4248DNTF	BGH96M100D5B	45500	11.7	17.5	47000	9	35600	1480/1200	❄
	BOVA-60HDN1-M20G/ BOVB-60HDN1-M20G	BMAC4248DNTF	BGH96M120D5B	45500	11.7	17.5	47000	9	35600	1480/1200	❄
5	BOVA-60HDN1-M20G/ BOVB-60HDN1-M20G	BMAC4860CNTF	BGH96M100C5B	51500	11.4	18	53500	8.5	38000	1370/1150	
	BOVA-60HDN1-M20G/ BOVB-60HDN1-M20G	BMAC4860DNTF	BGH96M100D5B	52000	11.7	18	54000	8.5	38500	1460/1170	
	BOVA-60HDN1-M20G/ BOVB-60HDN1-M20G	BMAC4860DNTF	BGH96M120D5B	52000	11.7	18	54000	8.5	38500	1460/1170	
2	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC2430ANTD	BGH96M060B3B	23800	12	18	24000	9	19600	740/540	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC2430ANTD	BGH96M080B3B	23800	12	18	24000	9	19600	750/560	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC2430BNTD	BGH96M060B3B	24000	12	18.5	24000	9	20000	760/550	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC2430BNTD	BGH96M080B3B	24000	12	18.5	24000	9	20000	750/560	❄
3	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC3036ANTD	BGH96M060B3B	32800	10.6	17.5	34000	9	25000	1090/840	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC3036ANTD	BGH96M080B3B	32800	10.6	17.5	34000	9	25000	1050/840	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC3036BNTD	BGH96M060B3B	33600	11	17.5	34200	9	25000	1120/870	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC3036BNTD	BGH96M080B3B	33600	11	17.5	34200	9	25000	1060/850	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC3036CNTD	BGH96M080C4B	33600	11	17.5	34200	9	25000	1100/870	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC3036CNTD	BGH96M100C5B	33200	11.2	17.5	34200	9	25000	1000/780	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC4248BNTF	BGH96M080B3B	33000	11.2	18.5	34200	9	25600	1100/880	❄
	BOVC-36HDN1-M20G/ BOVD-36HDN1-M20G	BMAC4248CNTF	BGH96M100C5B	33000	12	18.5	34200	9	25600	1060/840	❄

[1] Seasonal Energy Efficiency Ratio 2; Certified per AHRI 210/240

[2] Energy Efficiency Ratio 2; Certified per AHRI 210/240

[3] HSPF2 = Heating Seasonal Performance Factor; Certified per AHRI 210/240

[4] Jumper cut or dip switch off

☐ Items in **bold** boxes meet the requirements for ENERGY STAR v6.1

❄ Items meet the requirements for ENERGY STAR V6.1 Cold Climate

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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), 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.

Air Delivery - CFM (Without Filter) * **

Furnace size	Return-air inlet	Speed		External static pressure (in. WC)									
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
60B	Bottom or Sides	H	CFM	1430	1390	1350	1320	1280	1240	1200	1160	1110	1065
			Temp Rise-1st stage °F	--	--	--	--	--	--	--	30.7	32.2	33.6
			Temp Rise-2nd stage °F	37	37.4	38.6	39.3	40.7	41.7	43.4	45.1	47.1	49.1
		Mid-H	CFM	1245	1205	1165	1130	1100	1050	1010	960	920	865
			Temp Rise-1st stage °F	--	--	30	31.1	32.1	33.2	35.1	37	38.7	40.4
			Temp Rise-2nd stage °F	42.7	43.4	45	46.5	48.3	50.1	52.6	55.1	58	--
		Mid	CFM	1075	1035	1000	955	910	860	820	780	730	685
			Temp Rise-1st stage °F	32.1	33.4	35.5	37.6	39.3	41	43.1	45.1	48.2	51.3
			Temp Rise-2nd stage °F	49.4	52.9	55.4	58	--	--	--	--	--	--
		Mid-L	CFM	885	830	780	735	690	650	590	550	520	470
			Temp Rise-1st stage °F	39.1	41.7	44.9	48	51.2	54.5	59.1	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
		Low	CFM	780	707	640	579	500	466	403	356	320	253
			Temp Rise-1st stage °F	48.3	52.8	58	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
80B	Bottom or Sides	H	CFM	1411	1374	1339	1303	1271	1233	1190	1148	1102	1054
			Temp Rise-1st stage °F	--	--	--	35.5	36.4	37.5	38.8	40.3	41.9	43.8
			Temp Rise-2nd stage °F	50.5	51.8	53.2	54.6	56.0	57.8	59.8	62.0	64.6	--
		Mid-H	CFM	1215	1178	1144	1108	1071	1029	985	945	898	854
			Temp Rise-1st stage °F	38.0	39.2	40.4	41.7	43.2	44.9	46.9	48.9	51.5	54.2
			Temp Rise-2nd stage °F	56.6	58.4	60.2	62.3	64	--	--	--	--	--
		Mid	CFM	1044	1002	968	931	886	841	805	767	718	677
			Temp Rise-1st stage °F	40.8	43.4	45.8	50.5	50.9	54.0	57.6	60.8	64.4	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
		Mid-L	CFM	825	790	743	698	649	608	457	527	491	463
			Temp Rise-1st stage °F	50.5	53.7	58.4	62.9	--	--	--	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
		Low	CFM	786	720	645	598	539	503	436	385	348	302
			Temp Rise-1st stage °F	56.8	62.2	--	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
80C	Bottom or Sides	H	CFM	1516	1467	1418	1367	1312	1261	1201	1144	1086	1029
			Temp Rise-1st stage °F	--	--	--	--	35.1	36.2	38	39.8	41.6	43.3
			Temp Rise-2nd stage °F	46.7	47.4	48.8	50.1	52.5	54.8	57.4	59.9	62.7	--
		Mid-H	CFM	1316	1259	1203	1149	1092	1031	976	909	855	791
			Temp Rise-1st stage °F	35	37	38.2	39.4	41.1	42.7	45.2	47.7	50.9	54
			Temp Rise-2nd stage °F	53.8	53.2	55.8	58.4	62	--	--	--	--	--
		Mid	CFM	1142	1076	1014	960	894	823	765	702	651	597
			Temp Rise-1st stage °F	40.3	43.1	45.4	47.7	51.2	54.6	58.2	61.8	--	--
			Temp Rise-2nd stage °F	60	61.1	--	--	--	--	--	--	--	--
		Mid-L	CFM	901	829	767	692	625	562	506	463	409	345
			Temp Rise-1st stage °F	49	49.9	55.7	61.5	--	--	--	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
		Low	CFM	800	674	618	498	455	400	360	300	240	--
			Temp Rise-1st stage °F	57	--	--	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--

* A filter is required for each return air inlet. This table shows the airflow performance without a filter. To determine airflow performance with a filter, if a 3/4 inch (19 mm) washable media filter is used, assume an additional 0.1 in. WC available external static pressure.

** The manufacturer default fan settings are based on model

-- Indicates unstable operating conditions.

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Air Delivery - CFM (Without Filter) * **

Furnace size	Return-air inlet	Speed		External static pressure (in. WC)									
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
100C	Bottom or Sides	H	CFM	2195	2158	2116	2072	2031	1985	1940	1896	1852	1862
			Temp Rise-1st stage °F	--	--	--	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	40.3	41.0	41.8	42.7	43.6	44.6	45.6	46.7	47.8	47.5
		Mid-H	CFM	2008	1963	1924	1882	1836	1791	1744	1697	1648	1603
			Temp Rise-1st stage °F	--	--	--	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	44.1	45.1	46.0	47.0	48.2	49.4	50.8	52.2	53.7	55.2
		Mid	CFM	1753	1709	1666	1627	1573	1530	1487	1444	1395	1347
			Temp Rise-1st stage °F	--	--	--	35.4	36.6	37.6	38.7	39.9	41.3	42.7
			Temp Rise-2nd stage °F	50.5	51.8	53.1	54.4	56.3	57.9	59.5	61.3	63.5	65.8
		Mid-L	CFM	1447	1388	1338	1286	1241	1186	1137	1083	1029	983
			Temp Rise-1st stage °F	39.8	41.5	43.0	44.7	46.4	48.5	50.6	53.2	55.9	58.5
			Temp Rise-2nd stage °F	61.2	63.8	--	--	--	--	--	--	--	--
		Low	CFM	1089	1021	946	883	820	751	685	625	565	520
			Temp Rise-1st stage °F	52.8	56.4	60.8	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
100D	Bottom or Sides	H	CFM	2283	2239	2193	2143	2095	2049	1998	1947	1897	1847
			Temp Rise-1st stage °F	--	--	--	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	38.8	39.5	40.4	41.3	42.3	43.2	44.3	45.5	46.7	48.0
		Mid-H	CFM	2086	2038	1988	1942	1889	1841	1792	1745	1695	1637
			Temp Rise-1st stage °F	--	--	--	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	42.4	43.5	44.5	45.6	46.9	48.1	49.4	50.7	52.3	54.1
		Mid	CFM	1813	1760	1711	1657	1609	1560	1506	1453	1402	1350
			Temp Rise-1st stage °F	--	--	--	--	35.8	36.9	38.2	39.6	41.0	42.6
			Temp Rise-2nd stage °F	48.8	50.3	51.8	53.4	55.0	56.8	58.8	60.9	63.1	--
		Mid-L	CFM	1487	1417	1360	1296	1241	1183	1123	1064	1005	941
			Temp Rise-1st stage °F	38.7	40.6	42.3	44.4	46.4	48.7	51.3	54.1	57.2	61.1
			Temp Rise-2nd stage °F	59.5	62.5	--	--	--	--	--	--	--	--
		Low	CFM	1122	1036	977	889	802	731	646	586	532	485
			Temp Rise-1st stage °F	55.6	58.9	64.7	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
120D	Bottom or Sides	H	CFM	2290	2253	2213	2170	2127	2080	2031	1985	1937	1888
			Temp Rise-1st stage °F	--	--	--	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	46.4	47.2	48.0	49.0	50.0	51.1	52.3	53.5	54.9	56.3
		Mid-H	CFM	2079	2037	1993	1950	1907	1856	1813	1767	1726	1675
			Temp Rise-1st stage °F	--	--	--	--	--	--	--	--	40.0	41.2
			Temp Rise-2nd stage °F	51.1	52.2	53.3	54.5	55.7	57.3	58.6	60.1	61.6	63.4
		Mid	CFM	1809	1764	1719	1668	1620	1572	1528	1487	1432	1364
			Temp Rise-1st stage °F	--	--	40.2	41.4	42.6	43.9	45.2	46.5	48.2	50.6
			Temp Rise-2nd stage °F	58.7	60.2	61.8	63.7	65.6	67.6	69.6	--	--	--
		Mid-L	CFM	1489	1429	1373	1311	1265	1208	1137	1083	1032	972
			Temp Rise-1st stage °F	46.4	48.3	50.3	52.7	54.6	57.2	60.7	63.8	66.9	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--
		Low	CFM	1123	1051	1352	899	814	741	688	605	551	507
			Temp Rise-1st stage °F	61.5	65.7	--	--	--	--	--	--	--	--
			Temp Rise-2nd stage °F	--	--	--	--	--	--	--	--	--	--

* A filter is required for each return air inlet. This table shows the airflow performance without a filter. To determine airflow performance with a filter, if a 3/4 inch (19 mm) washable media filter is used, assume an additional 0.1 in. WC available external static pressure.

** The manufacturer default fan settings are based on model

-- Indicates unstable operating conditions.

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Filters

Bosch does not supply filters or filter racks with furnace units. All filters must be field supplied according to the Manufacturer recommended high velocity filter sizes and specifications shown below.

Furnace cabinet width	Filter size		Filter type
	Side return	Bottom return	
17-1/2	16X25	16X25	High Velocity (600 FPM)
21	16X25	20X25	High Velocity (600 FPM)
24.5	16X25	24X25	High Velocity (600 FPM)

Dimension in inches

High Altitude Derating

In high altitude applications, a standard derate for altitude from National Fuel Gas Code ANSI Z223.1 of 4% per 1000 feet above sea level must be taken. Refer to the most recent version of ANSI Z223.1 for correct gas orifice based on your specific application. The orifices must be selected using the specifications listed in the table below. The furnace derate is 4% for each 1,000 feet above sea level. For Canada applications, regulation requires 10% derating between 2000-4500 ft. When an appliance is installed at elevations above 4500 ft, the certified high altitude input rating shall be reduced at the rate of 4% for each additional 1000 ft.

The table below is based upon a heating value of approximately 1,000 Btu/ft³. In some areas the gas supplier may artificially derate the gas in an effort to compensate for the effects of altitude. If the gas is artificially derated, the appropriate orifice size must be determined based upon the BTU/ft³ content of the derated gas and the altitude. Refer to the latest version of NFPA54/ANSI Z223.1 and information provided by the gas supplier to determine the proper orifice size.

High Altitude Derate Orifice Size Chart (Natural and LP Gas*)

Input Rate KBTU/H	Number of burners	Elevation (Ft) 0-2000		Elevation (Ft) 2000-4000		Elevation (Ft) 4000-6000		Elevation (Ft) 6000-8000		Elevation (Ft) 8000-10000	
		NG**	LP	NG**	LP	NG**	LP	NG**	LP	NG**	LP
60	3	45	55	47	56	48	57	49	58	50	59
80	4	45	55	47	56	48	57	49	58	50	59
100	5	45	55	47	56	48	57	49	58	50	59
120	6	45	55	47	56	48	57	49	58	50	59

* LP orifice based on 10 in. WC manifold pressure
** NG denotes natural gas

The input to the furnace must be checked AFTER reorificing.

Units installed with natural gas at altitudes up to 2000 ft. above sea level may be installed without any modifications. Units installed above 2000 ft. of elevation must use orifices as specified in the above table.

For Canada applications, regulation requires 10% derating between 2000-4500 ft. When an appliance is installed at elevations above 4500 ft, the certified high altitude input rating shall be reduced at the rate of 4% for each additional 1000 ft.

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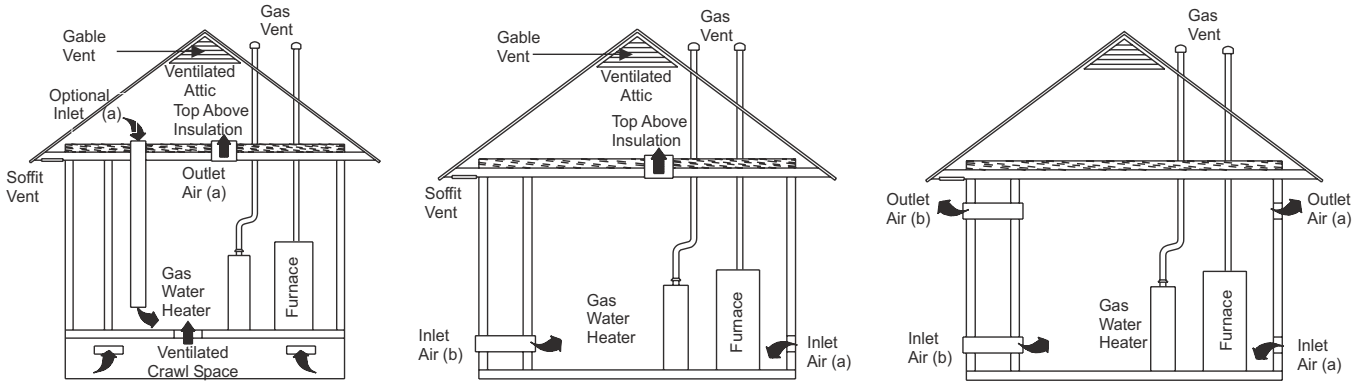
Venting

This Category IV, dual certified (AHRI and ETL) direct vent furnace is designed for residential applications. It may be installed without modification to the condensate system in a basement, garage, equipment room, alcove, attic or any other indoor location where all required clearance to combustibles and other restrictions are met*. The combustion air and the venting system must be installed in accordance with Section 5.3, Air for Combustion and Ventilation, of the National Fuel Gas Code Z223.1/NFPA 54 (latest edition), or Sections 7.2, 7.3 or 7.4 of CSA B149.1, National Gas and Propane Codes (latest edition) or applicable provisions of the local building code and these instructions.

This furnace requires a special venting system. This furnace is for use with schedule-40 PVC, PVC-DWV, CPVC, or ABS-DWV pipe, and **must not be vented in common with other gas-fired appliances**. Construction through which vent/air intake pipes may be installed is maximum 24 inches (610 mm), minimum 3/4 inches (19 mm) thickness (including roofing materials). Refer to Section 8 "Vent System" of the Installation, Operation, and Maintenance Manual, for installation instructions related to venting.

* The condensate from this unit is acidic, adhere to all local and national codes when draining condensate. If proper procedures are not followed, this may lead to property damage.

Outside and Ambient Combustion Air



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Equivalent Pipe Length

Maximum Equivalent Pipe Length		
Model Input kBTU/H (kW)	Pipe Size - Inches (cm)	Maximum Equivalent Length - Feet (m)
60 (17.6)	2 (5.1)	60 (18.2)
60 (17.6)	3 (7.6)	90 (27.4)
80 (23.4)	2 (5.1)	60 (18.2)
80 (23.4)	3 (7.6)	90 (27.4)
100 (29.3)	2 (5.1)	30 (9.1)
100 (29.3)	3 (7.6)	90 (27.4)
120 (35.1)	2 (5.1)	N/A
120 (35.1)	3 (7.6)	90 (27.4)

The following rules must also be followed:

1. Long radius (sweep) elbows are recommended. Standard elbows may be used, but since they have a longer equivalent length, they will reduce the total length of pipe that will be allowed. Short radius (plumbing vent) elbows are not allowed. The standard dimensions of the acceptable elbows are shown below.
2. The maximum equivalent length listed in Table 5, "Maximum Equivalent Pipe Length" is for the vent piping and the air intake piping separately. For example, if the table allows 60 equivalent feet for a particular model, then the vent can have 60 equivalent feet of pipe, AND the combustion air intake can have another 60 equivalent feet of pipe.
3. Three vent terminal elbows (two for the vent and one for the combustion air intake) are already accounted for and need not be included in the equivalent length calculation.
4. All combustion air and vent pipes and fittings must conform to American National Standards Institute (ANSI) and American Society for Testing and Materials (ASTM) standards, D1785 (Schedule 40 PVC), F441 (Schedule 40 CPVC), D2665 (PVC-DWV), F891 (PVC-DWV Cellular Core), D2661 (ABS-DWV) or D1527 (Schedule 40 ABS). Pipe cement and primer must conform to ASTM Standard D2564 (PVC), F493 (CPVC) or D2235 (ABS). If ABS pipe is to be used, any joint where ABS pipe is joined to PVC pipe must be glued with cement that is approved for use with BOTH materials. As an alternate, use all purpose cement, to bond ABS, PVC, or CPVC pipe when using fittings and pipe made of the same materials. Metallic materials must not be used for venting or air intake.
5. If a flexible connector is used in the vent system, it must be made of a material that is resistant to acidic exposure and to at least 225° F temperature. Flexible connectors are also allowed in the combustion air pipe.
6. All models are supplied with 2" vent connections. When the pipe must be increased to 3" diameter, the transition from 2" to 3" must be done as close to the furnace as possible. For upflow models, the transition from 2" to 3" should be done immediately above the furnace. For downflow or horizontal models, the transition from 2" to 3" pipe should be done immediately after exiting the furnace.
7. In Canada, vents shall be certified to ULC S636, Standard for Type BH Gas Venting Systems. IPEX System 636 PVC is certified to this standard.
8. In Canada, the first three feet (900 mm) of the vent must be readily accessible for inspection.
9. Minimum vent length for all models is 5 feet.

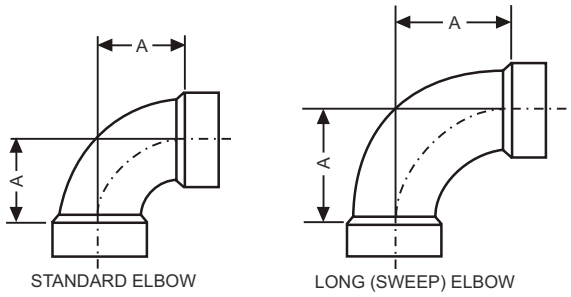
The equivalent length of the vent system is the total length of straight pipe PLUS the equivalent length of all of the elbows.

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Elbow Dimensions



Elbow Dimensions	
Elbow	"A" Dimension
2" Standard	2-5/16"
3" Standard	3-1/16"
2" Sweep	3-1/4"
3" Sweep	4-1/16"

Equivalent Length of Fittings	
Fitting	Equivalent Length
2" 90º sweep elbow	5 feet of 2" pipe
2" 45º sweep elbow	2-1/2 feet of 2" pipe
2" 90º standard elbow	10 feet of 2" pipe
2" 45º standard elbow	5 feet of 2" pipe
3" 90º sweep elbow	5 feet of 3" pipe
3" 45º sweep elbow	2-1/2 feet of 3" pipe
3" 90º standard elbow	10 feet of 3" pipe
3" 45º standard elbow	5 feet of 3" pipe
2" corrugated connector	10 feet of 2" pipe
3" corrugated connector	10 feet of 3" pipe

Combustion Air Intake & Vent Connection Size (All Models)	
Connection Type	Size - Inches (cm)
Intake Pipe	2" (5.1)
Vent Pipe	2" (5.1)

Furnace vent pipe connections are sized for 2" (5.1 cm) pipe. Any pipe size change must be made outside the furnace cabinet in a vertical pipe section to allow proper drainage of condensate. An offset using two 45º (degree) elbows will be required for plenum clearance when the vent is increased to 3" (7.6 cm).

Example:

An 80,000 BTUH furnace requires 32 feet of pipe and four 90º elbows. Using 2" pipe and standard elbows, the total equivalent length will be:

32 feet of 2" pipe =	32 equivalent feet
4 - 90º standard 2" elbows =	(4x10) = 40 equivalent feet
Total =	72 equivalent feet of 2" pipe

This exceeds the 60 foot maximum equivalent length of 2" pipe allowed for that model and is thus not acceptable.

By using sweep elbows, the total equivalent length will be:

32 feet of 2" pipe =	32 equivalent feet
4 - 90º sweep 3" elbows =	(4x5) = 20 equivalent feet
Total =	52 equivalent feet of 2" pipe

This is less than the 60 foot maximum equivalent length of 2" pipe allowed for that model and is thus acceptable.

Alternatively, using 3" pipe and standard elbows, the total equivalent length will be:

32 feet of 3" pipe =	32 equivalent feet
4 - 90º standard 2" elbows =	(4x10))= 40 equivalent feet
Total =	72 equivalent feet of 3" pipe

This is less than the 90 foot maximum equivalent length of 3" pipe allowed for that model and is thus acceptable.

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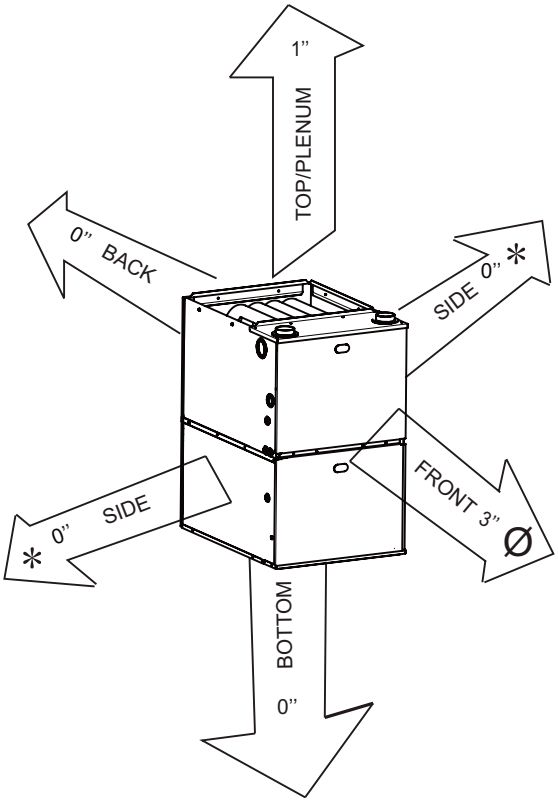
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Required Clearance to Combustibles

This furnace may be installed on combustible flooring in an alcove or closet at minimum clearance as indicated below.

Minimum clearance from combustible construction

Clearance arrows do not change with furnace orientation



SIDES*	FRONT	BACK	TOP (PLENUM)
0"	3"	0"	1"

✻ When the unit is installed in the horizontal orientation, there must be 7" clearance in order to install the externally mounted drain trap.

Ø 24 inches is required for service and maintenance.

Horizontal installation in attic or crawl space

✻ Indicates supply or return sides when furnace is in the horizontal position. Line contact only permissible between lines formed by intersections of the side and back of the furnace cabinet and building joists, studs or frame.

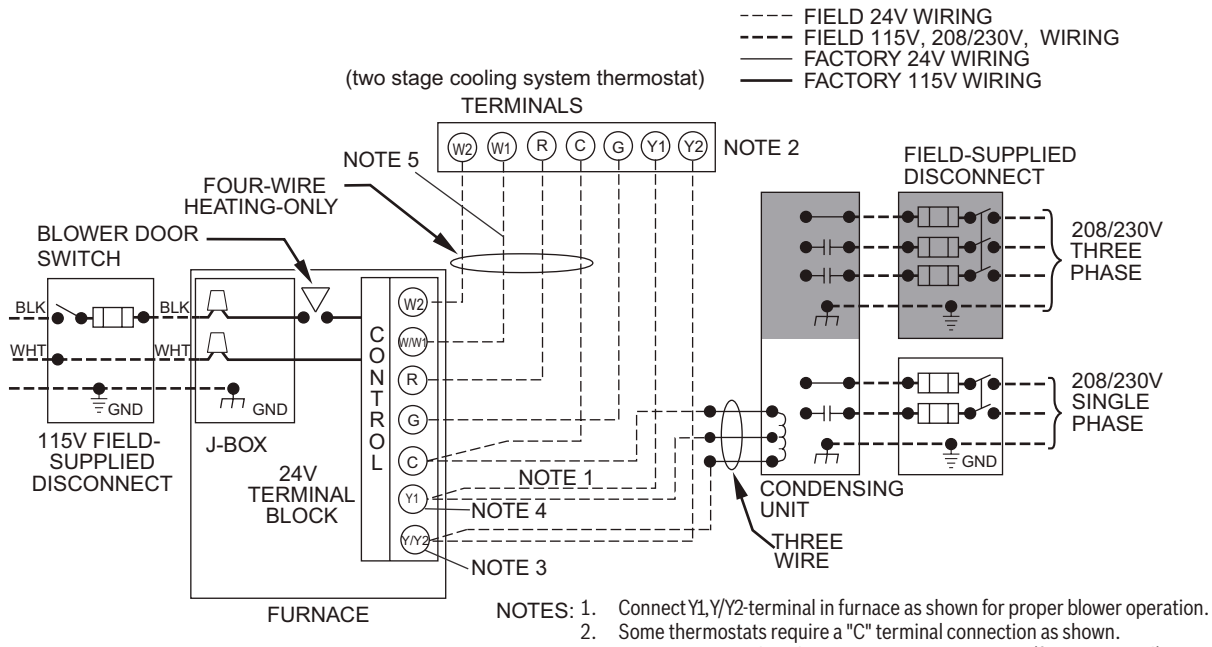
Horizontal applications require a solid, supportive structure for installation (refer to the Installation, Operation & Maintenance Manual Section 7.2 “Horizontal Installation”).

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Heating and Cooling Application Wiring Diagram with 2-Stage Thermostat



NOTES:
1. Connect Y1,Y/Y2-terminal in furnace as shown for proper blower operation.
2. Some thermostats require a "C" terminal connection as shown.
3. For two stage cooling thermostat, connect Y1 to Y1 (first stage cool) terminal and connect Y/Y2 to Y2 (second stage cool) terminal.
4. For one stage cooling thermostat, connect Y/Y2 to Y terminal.
5. Please connect W/W1 with single stage heat system thermostat terminal W,and keep W2 reserved.
6. If any of the original wire, as supplied, must be replaced, use same type or equivalent wire.

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Electrical & Controls

Ratings & Physical / Electrical Data

Input		Output		Nominal Airflow	MAX. Unit Amps	AFUE	Air Temp. Rise		Max.Over-Current Protection	Min. Wire Size (AWG) @ 75 ft	Max. Outlet Air Temp	
MBH	kW	MBH	kW	CFM			° F	° C	Amps		° F	° C
60B3	17.6	57	16.7	1200	8	96	30-60	17-33	15	14	160	71
80B3	23.4	76	22.3	1200	8	96	35-65	19-36	15	14	165	74
80C4	23.4	76	22.3	1600	7.8	96	35-65	19-36	15	14	165	74
100C5	29.3	95	27.8	2000	11.5	96	35-65	19-36	20	14	165	74
100D5	29.3	95	27.8	2000	10.5	96	35-65	19-36	20	14	165	74
120D5	35.2	115	31.2	2000	10.5	95	40-70	22-39	20	14	170	77

Annual Fuel Utilization Efficiency (AFUE) numbers are determined in accordance with DOE Test procedures.

National Electrical Code (NFPA-70-latest edition) and all local codes.

The furnace shall be installed so that the electrical components are protected from water.

Sequence of Operations

1. Heating mode

In a typical system, a call for first stage heat is initiated by closing the W1 thermostat contacts. The inducer blower is energized at high speed and the control waits for the low pressure switch contacts to close. The humidifier (optional) is also energized at this time. Once the low pressure switch contacts close, a 15-second pre-purge is initiated. Then the inducer changes to low speed and the 120V ignitor is powered. At the end of the ignitor warm-up time, the first stage of the two-stage manifold gas valve is energized (low fire). Flame must be detected within 4 seconds. If flame is detected, the 45-second HEAT delay-to-fan-on period begins. After the delay-to-fan-on period ends, the control will energize the circulator fan at low heat speed. The electronic air cleaner (optional) will also energize at this time. For a two-stage thermostat, a call for second stage heat (W1 and W2) after a call for first stage heat will energize the inducer at high speed and the circulator at high heat speed. The second stage pressure switch contacts will close and energize the second stage gas valve (high fire). For a single-stage thermostat, when a call for heat occurs (W1), a 10, 20 minute or auto mode heat staging timer will be activated (timing is selectable with option switches S1-1 and S1-2 positions). Following this delay, the second stage heat is energized as above.

When the second stage of the thermostat is satisfied, the inducer motor is reduced to low speed and the second stage gas valve is de-energized. On the control, the circulator will remain at high heat speed for 30 seconds following the opening of the second stage gas valve and then is reduced to low heat speed. When the first stage of the thermostat is satisfied, the first stage gas valve is

de-energized and the HEAT delay-to-fan-off begins timing. The inducer will postpurge for an additional 15 seconds, then the inducer and humidifier will turn off. Upon completion of the HEAT delay-to-fan-off period, the circulator is turned off. The electronic air cleaner on the control is also de-energized at this time.

If flame is not detected during the trial-for-ignition period or if the flame is detected/sensed and then lost before completion of 10 seconds of establishment, the gas valve is de-energized, the ignitor is turned off, and the control goes into the “retry” sequence. The “retry” sequence provides a 60-second wait with the inducer interpurge following an unsuccessful ignition attempt (flame not detected). After this wait, the ignition attempt is restarted. Two retries will be attempted before the control goes into system lockout. If flame is established for more than 10 seconds after ignition, the controller will clear the ignition attempt (or retry) counter. If flame is lost after 10 seconds, the control will restart the ignition sequence.
A momentary loss of gas supply, flame blowout, or a shorted or open condition in the flame probe circuit will be sensed within 2 seconds. The gas valve will de-energize and the control will restart the ignition sequence. Recycles will begin and the burner will operate normally if the gas supply returns, or the fault condition is corrected, before the last ignition attempt. Otherwise, the control will go into system lockout. If the control has gone into system lockout, it may be possible to reset the control by a momentary power interruption of 10 seconds or longer.

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Timing specifications
(All times are in seconds, unless noted otherwise)

Event	Definition	Time
Pre-purge Time	The period of time intended to allow for the dissipation of any unburned gas or residual products of combustion at the beginning of a furnace operating cycle prior to initiating ignition	15
Ignitor Warm-up Time	The length of time allowed for the ignitor to heat up prior to the ignition of gas flow.	17
Trial for ignition Period(TFI)	The period of time between initiation of gas flow and the action to shut off the gas flow in the event of failure to establish proof of the supervised ignition source or the supervised main burner flame.	4
Ignition Activation Period(IAP)	The period of time between energizing the main gas vale and deactivation of the ignition means prior to the end of TFI	3
Retries	The additional attempts within the same thermostat cycle for ignition when the supervised main burner flame is not proven within the first trial for ignition period.	2 times
Valve Sequence period	Value sequence period equals 4 seconds trial for ignition period x (1 initial try + 2 retries)+12 seconds.	12
Inter-purge	The period of time intended to allow for the dissipation of any unburned gas or residual products of combustion between the failed trial for ignition and the retry period.	60
Post-purge Time	The period of time intended to allow for the dissipation of any unburned gas or residual products of combustion at the end of a furnace burner operating cycle, Post-purge begins at the loss of flame sense.	15
Lock-Out Time	ANSI standard rated module timing.	300
Heat Delay-To-Fan-On	The period of time between proof of the supervised main burner flame and the activation of the blower motor at heat speed.	30
Heat Delay-To-Fan-Off*	The period of time between the loss of a call for heat and the deactivation of the blower motor at Heat speed.	*90/120/150/180
Cool Delay-To-Fan-On	The period of time after a thermostat demand for cool before energizing the circulator blower motor at cool speed.	1
Cool Delay-To-Fan-Off	The period of time between the loss of a call for cool and the deactivation of the blower motor at cool speed.	60/*90/120/150
Automatic Reset Time	After one (1) hour of internal or external lockout, the control will automatically reset itself and go into an auto restart purge for 60 seconds.	60 minutes

* These times will vary depending on option switch position.

Optional Switch Positions

W2 Delay		
DIP Switch (SW)		NOMINAL (MINUTES)
S1-1	S1-2	
OFF	OFF	OFF*
ON	OFF	10
OFF	ON	AUTO
ON	ON	20

* The factory default settings

Heat Off Delay		
DIP Switch (SW)		NOMINAL (SECONDS)
S1-3	S1-4	
OFF	OFF	90
ON	OFF	120
OFF	ON	150
ON	ON	180*

* The factory default settings

Cool Off Delay		
DIP Switch (SW)		NOMINAL (SECONDS)
S2-3	S2-4	
OFF	OFF	60
ON	OFF	90*
OFF	ON	120
ON	ON	150

* The factory default settings

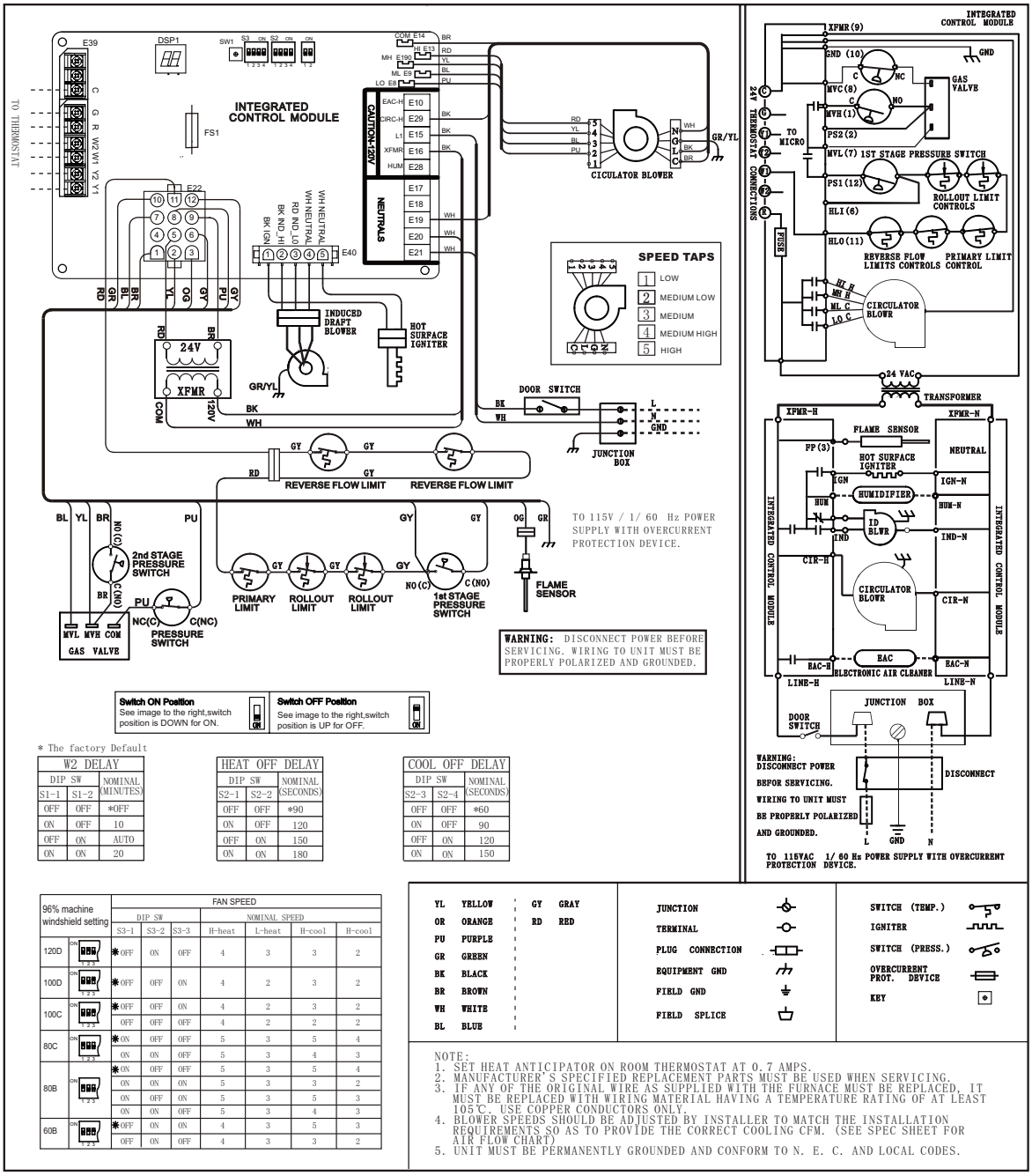
When using a single stage thermostat, second stage delay is based on the setting of switch S1-1& S1-2 dip switches.

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Unit Wiring Diagram



* The factory Default

W2 DELAY		
DIP SW		NOMINAL (MINUTES)
S1-1	S1-2	
OFF	OFF	*OFF
ON	OFF	10
OFF	ON	AUTO
ON	ON	20

HEAT OFF DELAY		
DIP SW		NOMINAL (SECONDS)
S2-1	S2-2	
OFF	OFF	*90
ON	OFF	120
OFF	ON	150
ON	ON	180

COOL OFF DELAY		
DIP SW		NOMINAL (SECONDS)
S2-3	S2-4	
OFF	OFF	*60
ON	OFF	90
OFF	ON	120
ON	ON	150

96% machine windshield setting		FAN SPEED						
		DIP SW			NOMINAL SPEED			
		S3-1	S3-2	S3-3	H-heat	L-heat	H-cool	L-cool
120D		*OFF	ON	OFF	4	3	3	2
100D		*OFF	OFF	ON	4	2	3	2
100C		*OFF	OFF	ON	4	2	3	2
		OFF	OFF	OFF	4	2	2	2
80C		*ON	OFF	OFF	5	3	5	4
		ON	ON	OFF	5	3	4	3
80B		*ON	OFF	OFF	5	3	5	4
		ON	ON	ON	5	3	3	2
		ON	OFF	ON	5	3	5	3
		ON	ON	OFF	5	3	4	3
60B		*OFF	ON	ON	4	3	5	3
		OFF	ON	OFF	4	3	3	2

Bosch Thermotechnology Corp.
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Bosch Thermotechnology Corp. reserves the right to make changes without notice due to continuing engineering and technological advances | BTC 770508101 J | 03.2024

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