

Burner Capacity Information

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Burner Capacity Information, HBG 1004/2004

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	320,000 80	1,550,000 410	2,200,000 580	2,690,000 710	3,090,000 820
Air Capacity	(scfh)	3,320	16,100	22,800	27,900	32,000
	(nm ³ /hr)	89	431	611	747	857
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	0.5	0.9	1.3	1.5
	(mbar)	0.1	1.2	2.2	3.1	3.7
Flame Length (at 10% Excess Air)	(in)	30	40	55	65	70
	(mm)	760	1020	1400	1650	1780
Flame Diameter (at 10% Excess Air)	(in)	10	15	15	20	20
	(mm)	250	380	380	510	510
Maximum Operating Excess	(Air)	100%	400%	600%	600%	600%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	450	2,250	N/R	N/R	N/R
	(nm ³ /hr)	12.1	60.3	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	175	425	N/R	N/R	N/R
	(nm ³ /hr)	4.7	11.4	N/R	N/R	N/R

Burner Capacity Information, HBG 3004

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

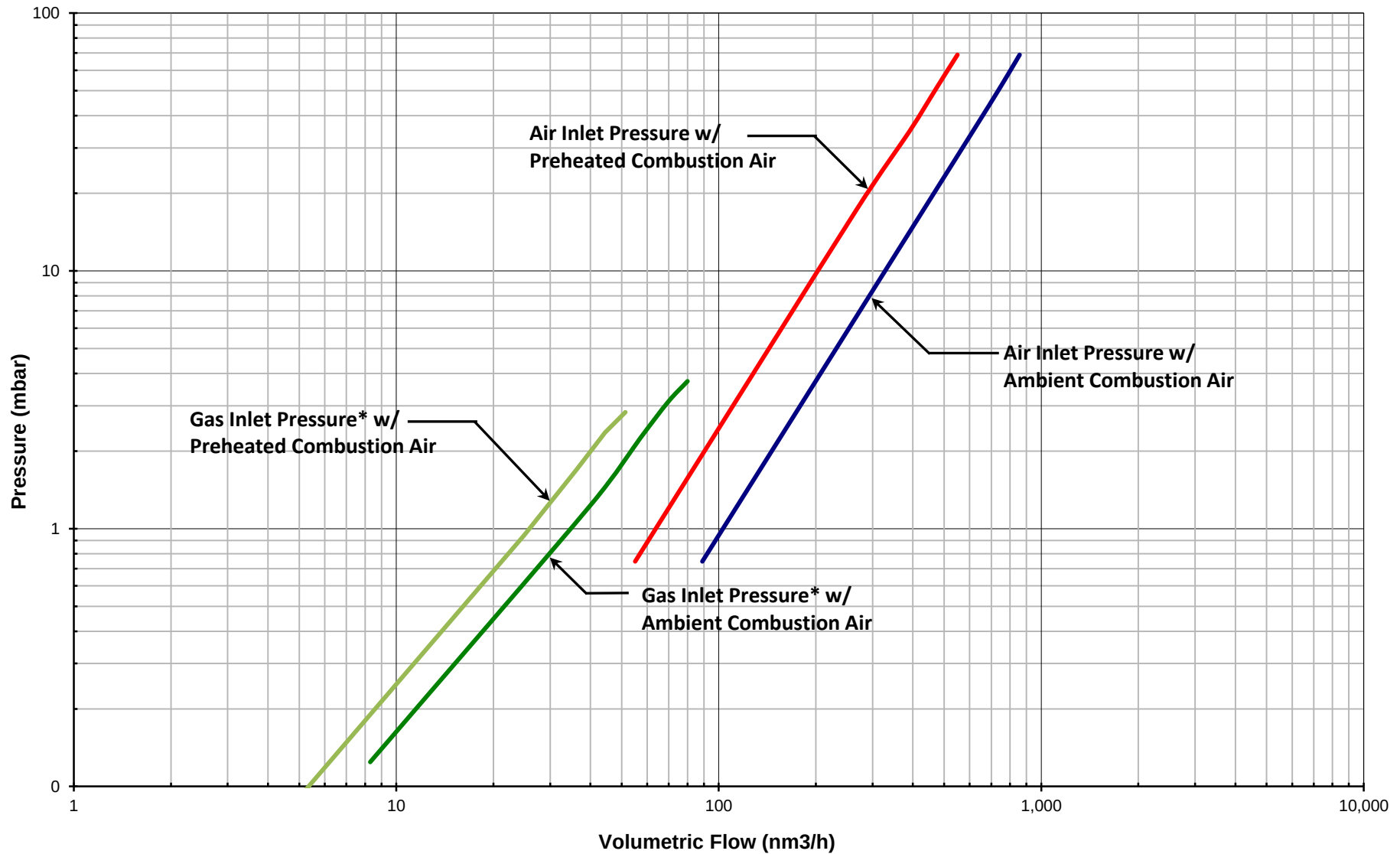
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	200,000 50	960,000 250	1,400,000 370	1,710,000 450	1,980,000 520
Air Capacity	(scfh)	2,055	9,975	14,500	17,750	20,525
	(nm ³ /hr)	55	267	388	475	550
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.0	0.4	0.7	0.9	1.1
	(mbar)	0.1	0.9	1.7	2.4	2.8
Flame Length (at 10% Excess Air)	(in)	25	30	35	35	40
	(mm)	640	760	890	890	1020
Flame Diameter (at 10% Excess Air)	(in)	10	10	15	15	15
	(mm)	250	250	380	380	380
Maximum Operating Excess	(Air)	100%	350%	500%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	275	725	1,450	N/R	N/R
	(nm ³ /hr)	7.4	19.4	38.8	N/R	N/R
Minimum Ignition Gas	(scfh)	110	175	275	N/R	N/R
	(nm ³ /hr)	2.9	4.7	7.4	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner.
- Ignition limits are established with (1) IPG5411 gas pilot, (2) IPE50 spark igniter, and (3) ZMI 16 gas pilot; with metered air and fuel flows and 5kV/15mA spark ignition transformer; for limits listed as N/R ignition is Not Recommended at this capacity.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

HBG 2004/3004 Pressure Curves

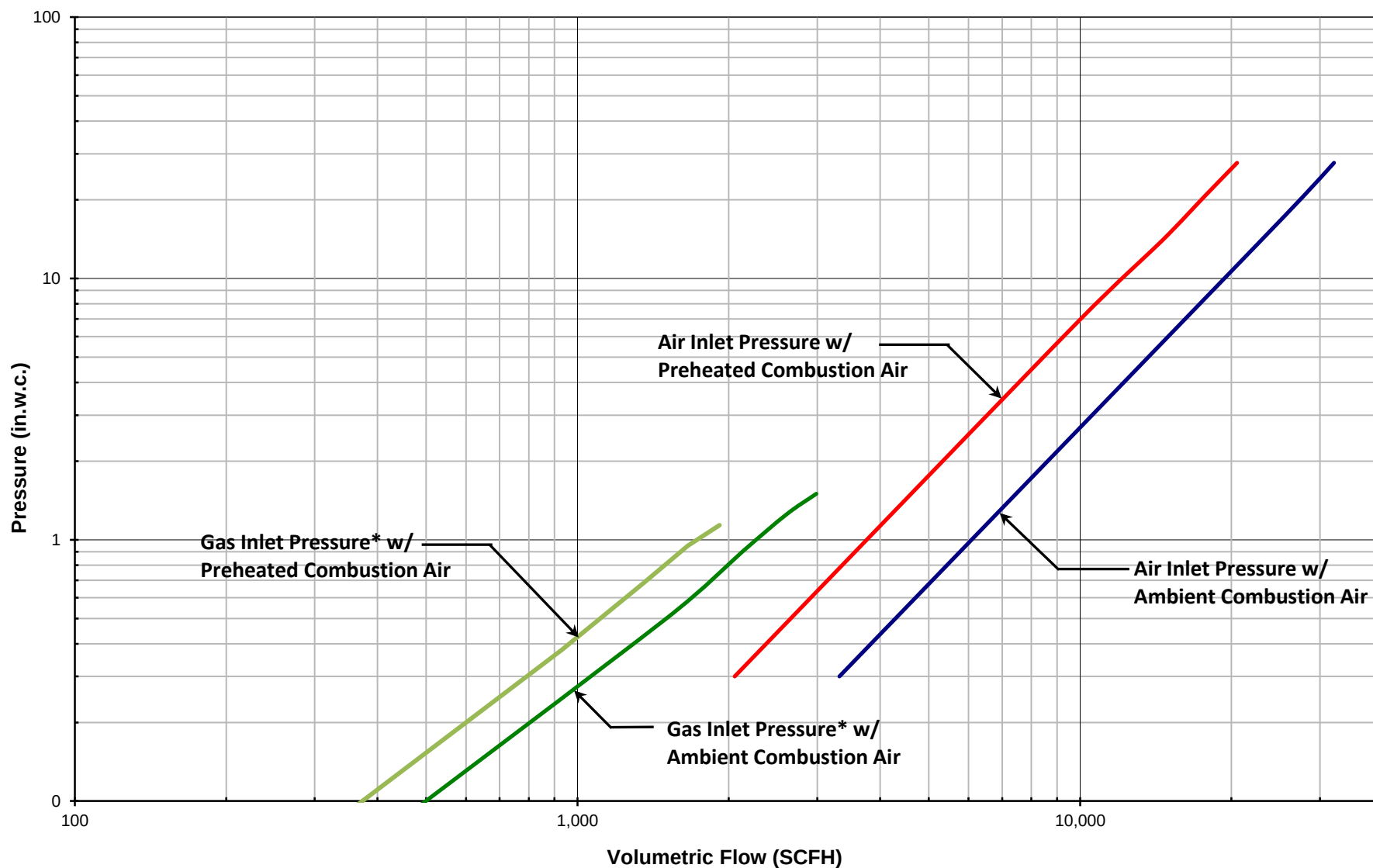
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

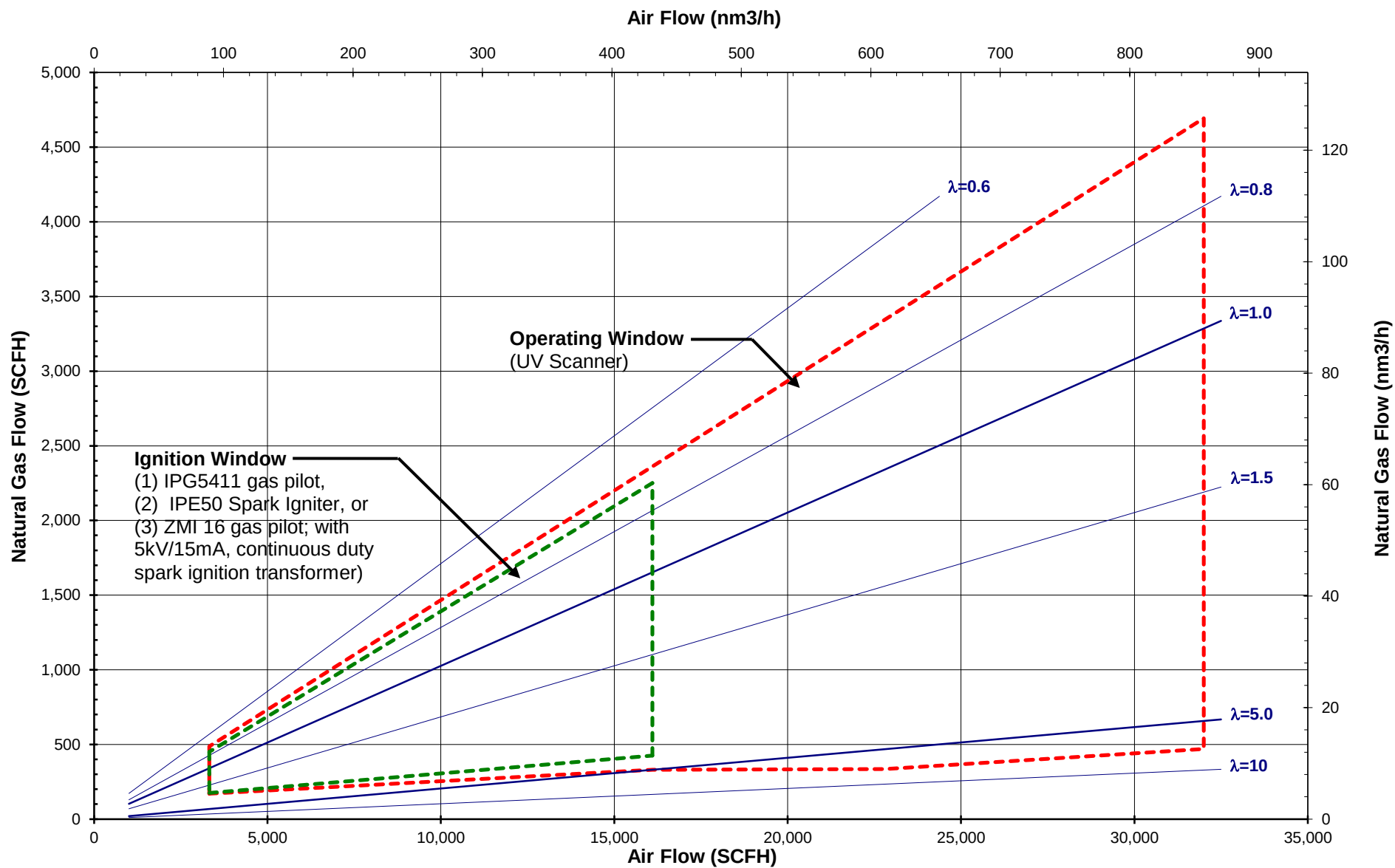
HBG 2004/3004 Pressure Curves

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 2004/3004 Operating and Ignition Window
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air



Burner Capacity Information, HBG 1006/2006

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	650,000 170	3,140,000 830	4,330,000 1,150	5,260,000 1,390	6,130,000 1,620
Air Capacity	(scfh)	6,750	32,500	44,825	54,500	63,500
	(nm ³ /hr)	181	871	1,201	1,460	1,701
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	2.7	5.6	8.6	11.6
	(mbar)	0.2	6.7	13.9	21.3	28.8
Flame Length (at 10% Excess Air)	(in)	36	72	84	90	96
	(mm)	910	1830	2130	2290	2440
Flame Diameter (at 10% Excess Air)	(in)	18	20	20	24	24
	(mm)	460	510	510	610	610
Maximum Operating Excess	(Air)	200%	400%	400%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	975	4,500	N/R	N/R	N/R
	(nm ³ /hr)	26.1	120.5	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	425	750	N/R	N/R	N/R
	(nm ³ /hr)	11.4	20.1	N/R	N/R	N/R

Burner Capacity Information, HBG 3006

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

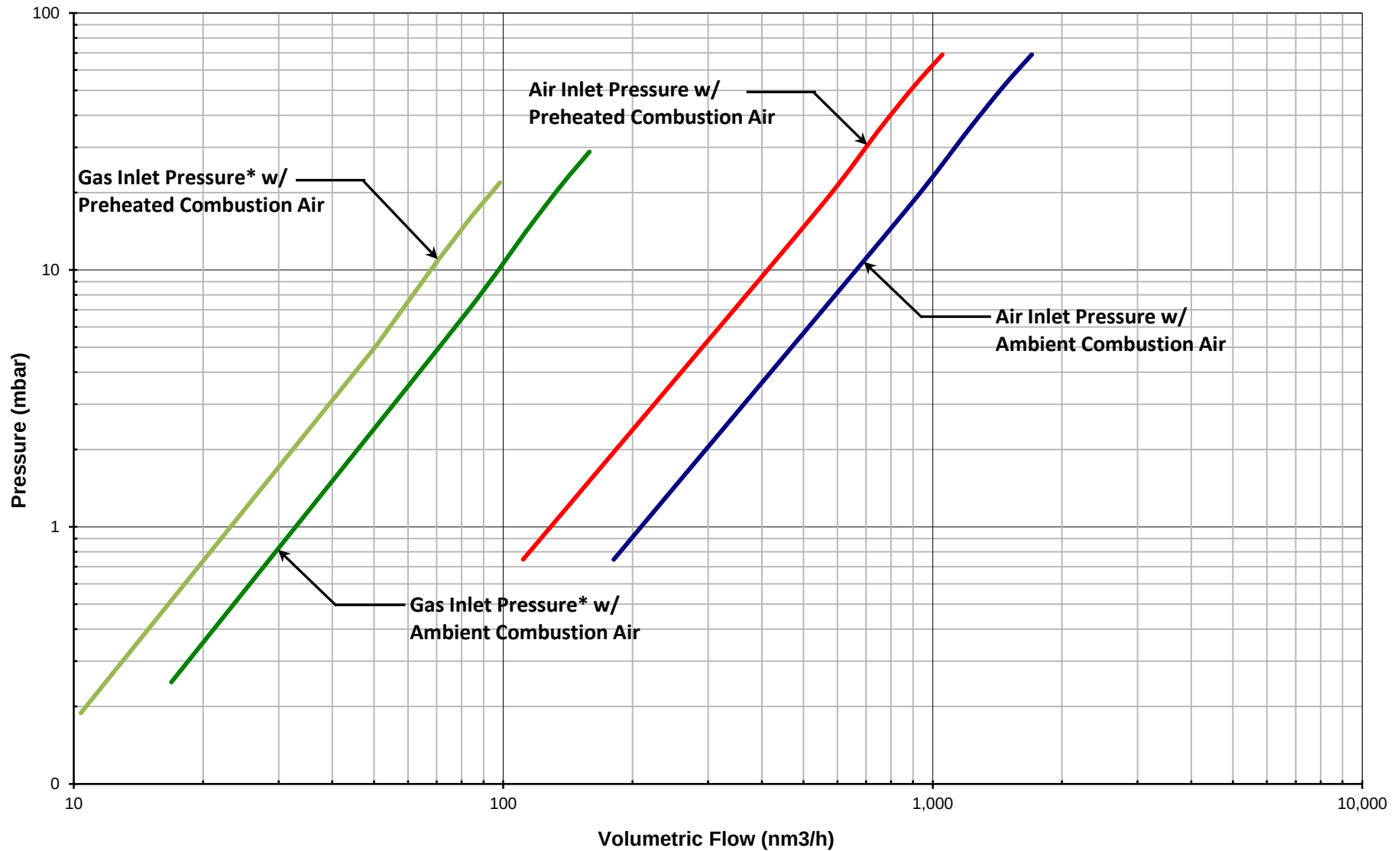
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	400,000 110	1,950,000 520	2,680,000 710	3,250,000 860	3,800,000 1,010
Air Capacity	(scfh)	4,152	20,225	27,750	33,715	39,325
	(nm ³ /hr)	111	542	743	903	1,053
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	2.0	4.2	6.5	8.8
	(mbar)	0.2	5.1	10.5	16.1	21.9
Flame Length (at 10% Excess Air)	(in)	25	30	35	45	55
	(mm)	640	760	890	1140	1400
Flame Diameter (at 10% Excess Air)	(in)	15	20	20	20	25
	(mm)	380	510	510	510	640
Maximum Operating Excess	(Air)	150%	300%	300%	300%	300%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	600	2,950	N/R	N/R	N/R
	(nm ³ /hr)	16.1	79.0	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	185	525	N/R	N/R	N/R
	(nm ³ /hr)	5.0	14.1	N/R	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner or flame rod (1000 series only).
- Ignition limits are established with (1) IPG5413 gas pilot, (2) IPE50 spark igniter, and (3) ZMI 16 gas pilot; with metered air and fuel flows and 5kV/15mA spark ignition transformer; for limits listed as N/R ignition is Not Recommended at this capacity.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

HBG 1006/2006/3006 Pressure Curves

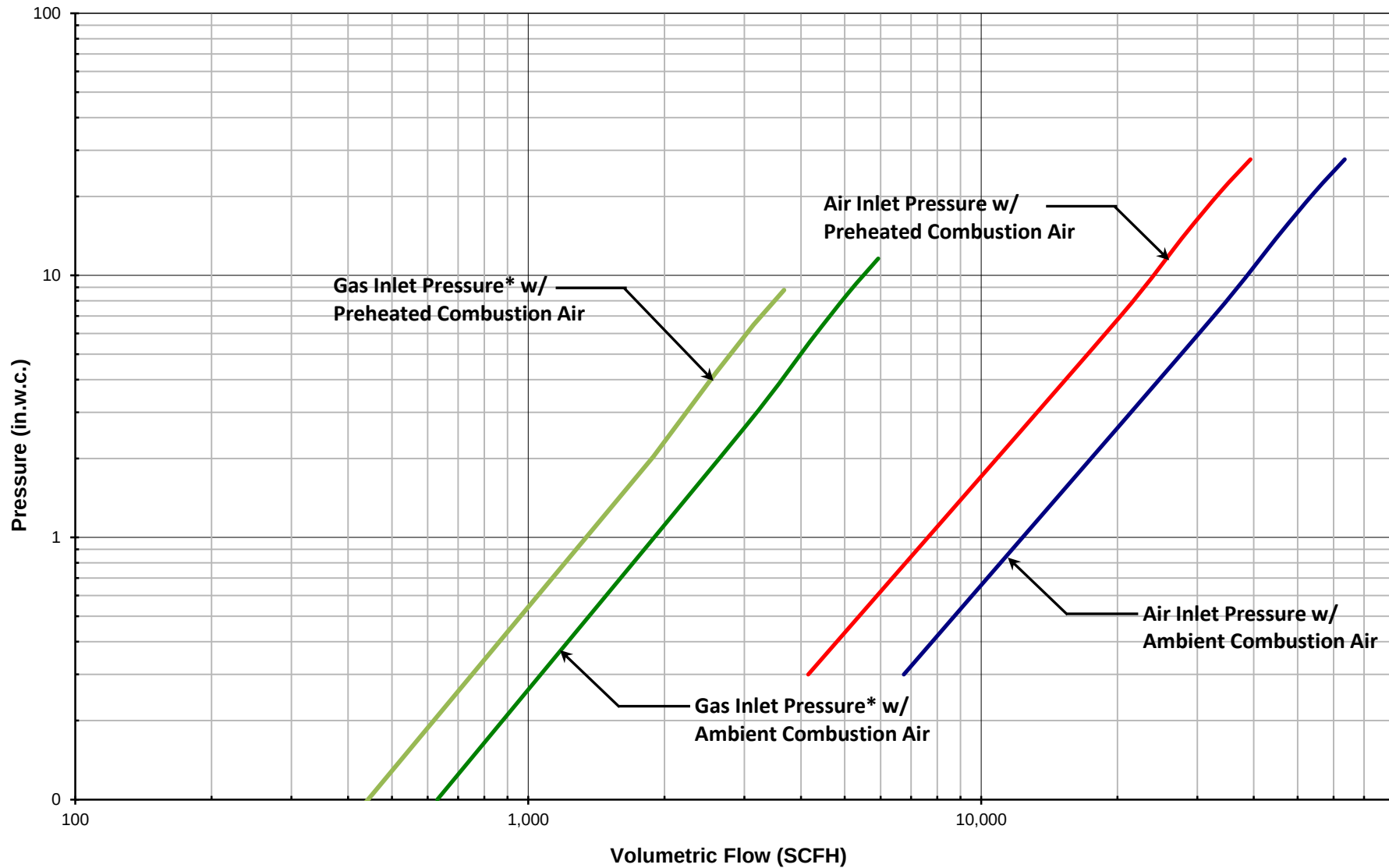
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1006/2006/3006 Pressure Curves

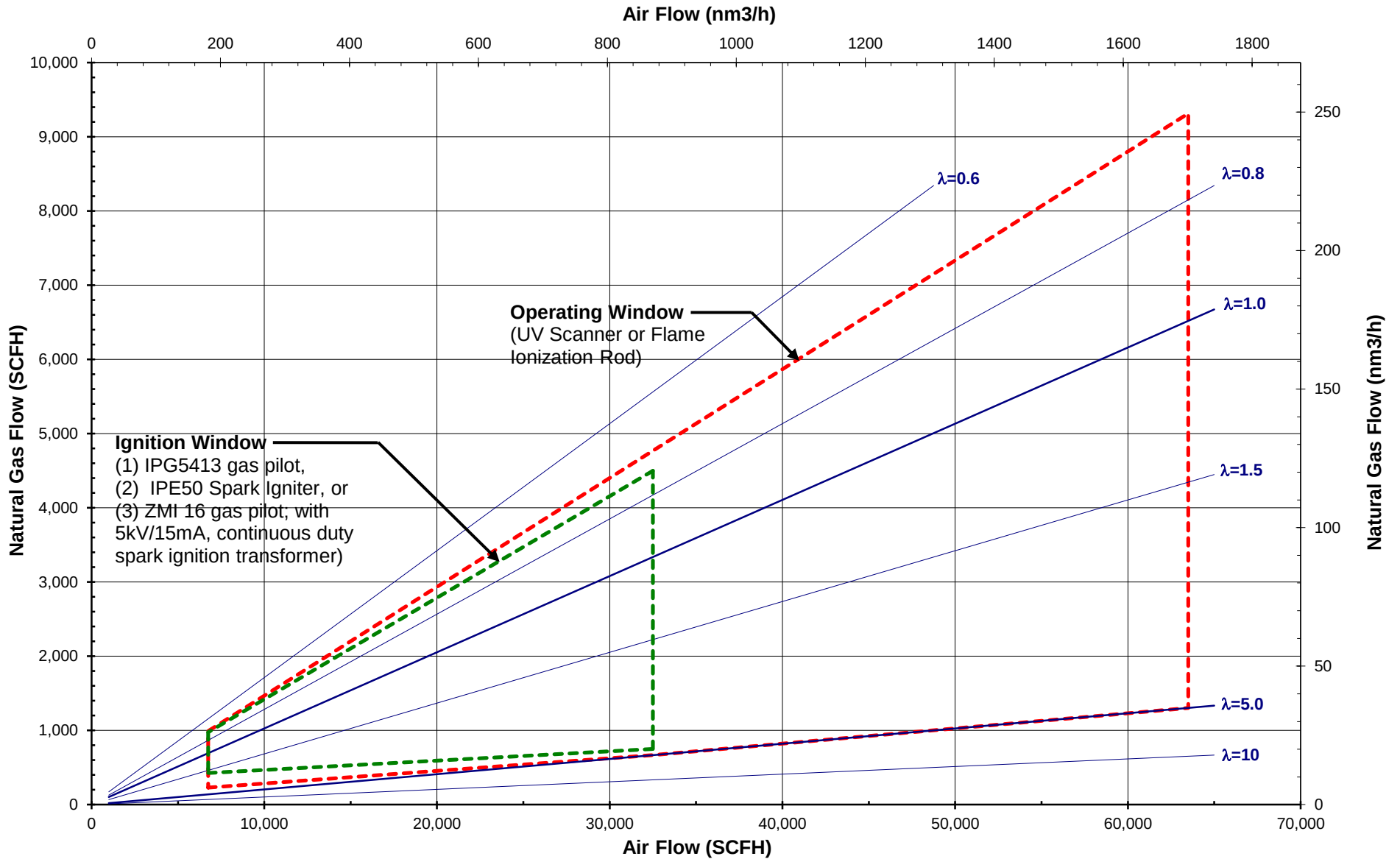
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



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HBG 1006/2006/3006 Operating and Ignition Window

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air



Burner Capacity Information, HBG 1008/2008

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	1,211,000 320	5,991,000 1,580	8,507,000 2,250	10,486,000 2,770	12,015,000 3,180
Air Capacity	(scfh)	12,550	62,075	88,150	108,650	124,500
	(nm ³ /hr)	336	1,663	2,361	2,911	3,335
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	3.2	6.4	9.3	12.2
	(mbar)	0.3	8.0	15.9	23.1	30.4
Flame Length (at 10% Excess Air)	(in)	60	84	96	108	120
	(mm)	1520	2130	2440	2740	3050
Flame Diameter (at 10% Excess Air)	(in)	24	30	30	36	36
	(mm)	610	760	760	910	910
Maximum Operating Excess	(Air)	300%	500%	500%	600%	600%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	1,800	9,000	N/R	N/R	N/R
	(nm ³ /hr)	48.2	241.1	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	375	1,100	N/R	N/R	N/R
	(nm ³ /hr)	10.0	29.5	N/R	N/R	N/R

Burner Capacity Information, HBG 3008

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

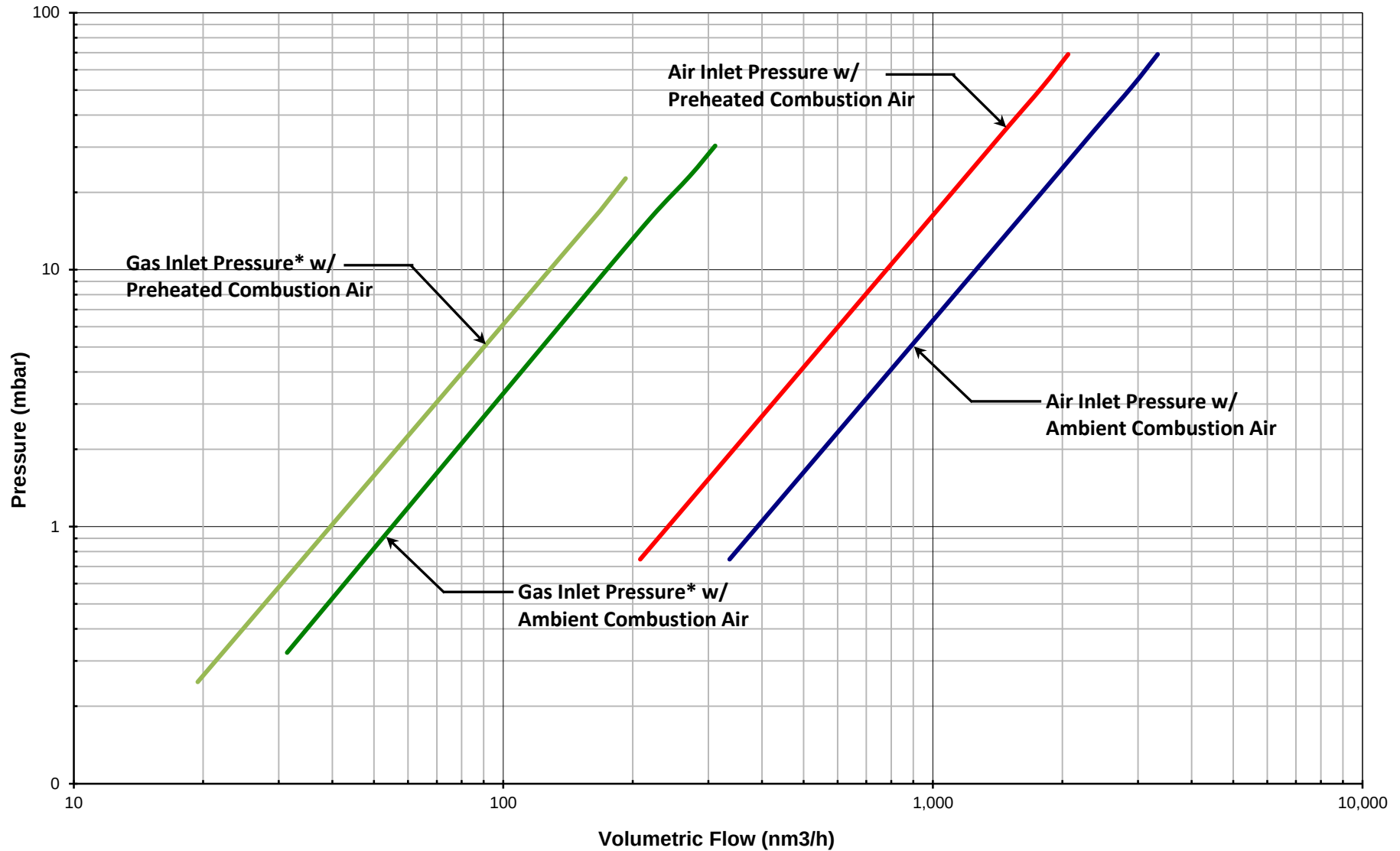
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	750,000 200	3,708,000 980	5,269,000 1,390	6,493,000 1,720	7,438,000 1,970
Air Capacity	(scfh)	7,775	38,425	54,600	67,275	77,075
	(nm ³ /hr)	208	1,029	1,463	1,802	2,065
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	2.3	4.6	6.8	9.1
	(mbar)	0.2	5.7	11.3	17.0	22.6
Flame Length (at 10% Excess Air)	(in)	48	60	72	78	84
	(mm)	1220	1520	1830	1980	2130
Flame Diameter (at 10% Excess Air)	(in)	24	24	30	30	36
	(mm)	610	610	760	760	910
Maximum Operating Excess	(Air)	250%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	1,100	5,500	N/R	N/R	N/R
	(nm ³ /hr)	29.5	147.3	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	250	800	N/R	N/R	N/R
	(nm ³ /hr)	6.7	21.4	N/R	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner or flame rod (1000 series only).
- Ignition limits are established with (1) IPG5413 gas pilot, (2) IPE50 spark igniter, and (3) ZMI 16 gas pilot; with metered air and fuel flows and 5kV/15mA spark ignition transformer; for limits listed as N/R ignition is Not Recommended at this capacity.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

HBG 1008/2008/3008 Pressure Curves

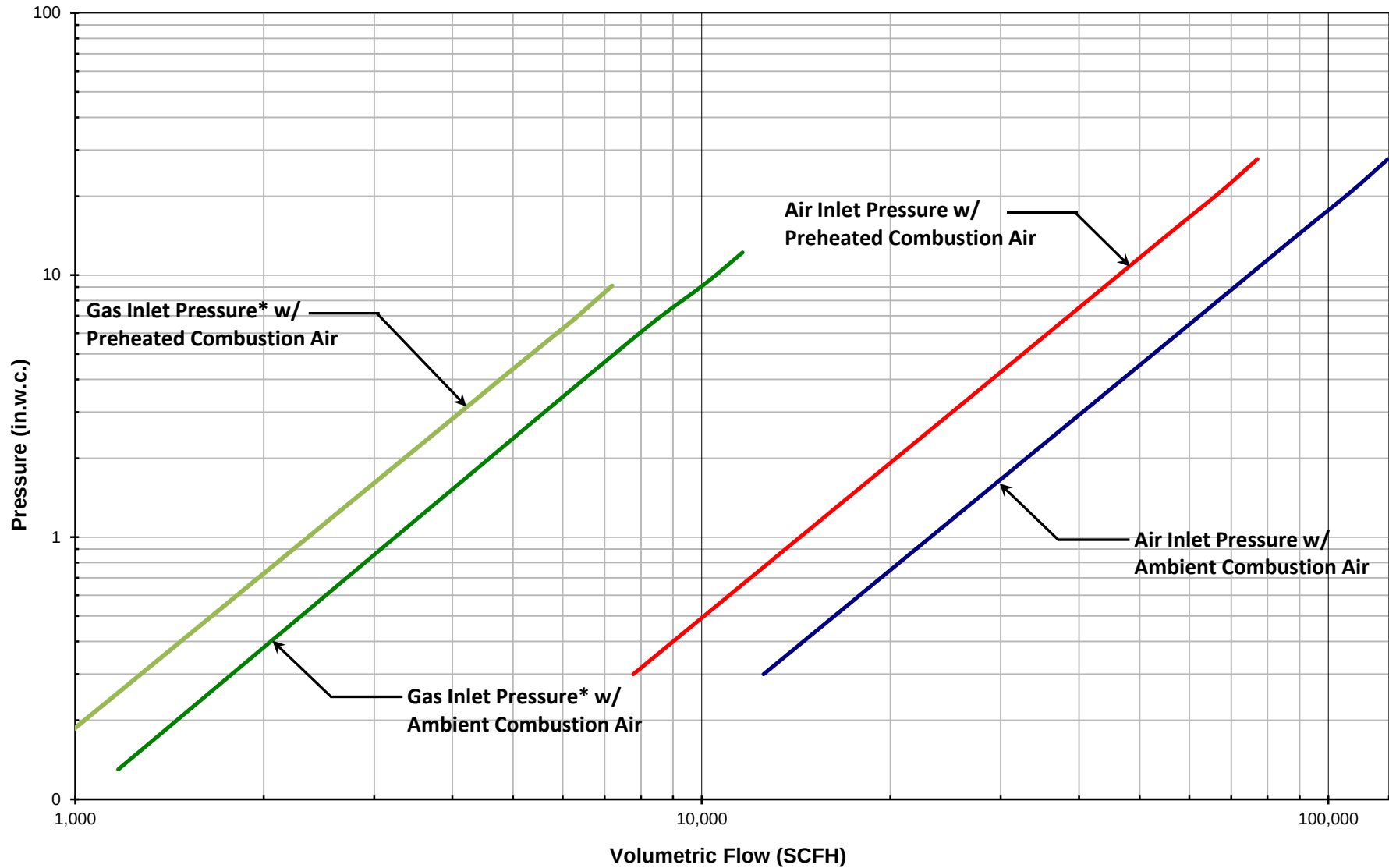
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1008/2008/3008 Pressure Curves

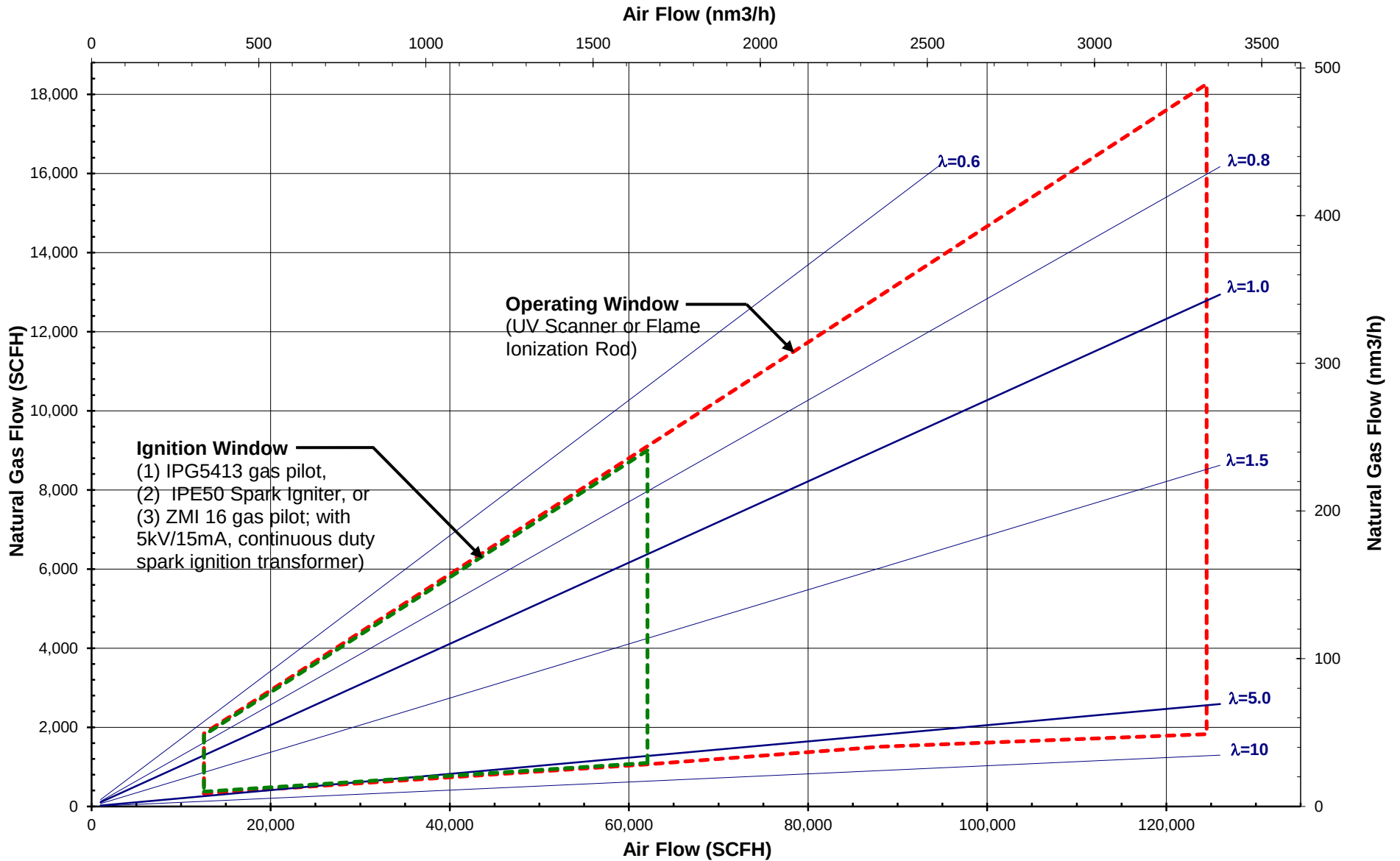
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1008/2008/3008 Operating and Ignition Window

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air



Burner Capacity Information, HBG 1010/2010

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	2,220,000 590	9,460,000 2,500	13,220,000 3,500	16,310,000 4,310	19,110,000 5,050
Air Capacity	(scfh)	23,000	98,000	137,000	169,000	198,000
	(nm ³ /hr)	616	2,625	3,670	4,527	5,304
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	1.2	2.2	3.0	3.7
	(mbar)	0.2	3.1	5.3	7.4	9.3
Flame Length (at 10% Excess Air)	(in)	72	108	120	132	144
	(mm)	1830	2740	3050	3350	3660
Flame Diameter (at 10% Excess Air)	(in)	36	42	48	48	48
	(mm)	910	1070	1220	1220	1220
Maximum Operating Excess	(Air)	300%	500%	500%	600%	600%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	3,250	14,250	N/R	N/R	N/R
	(nm ³ /hr)	87.1	381.7	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	600	1,700	N/R	N/R	N/R
	(nm ³ /hr)	16.1	45.5	N/R	N/R	N/R

Burner Capacity Information, HBG 3010

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

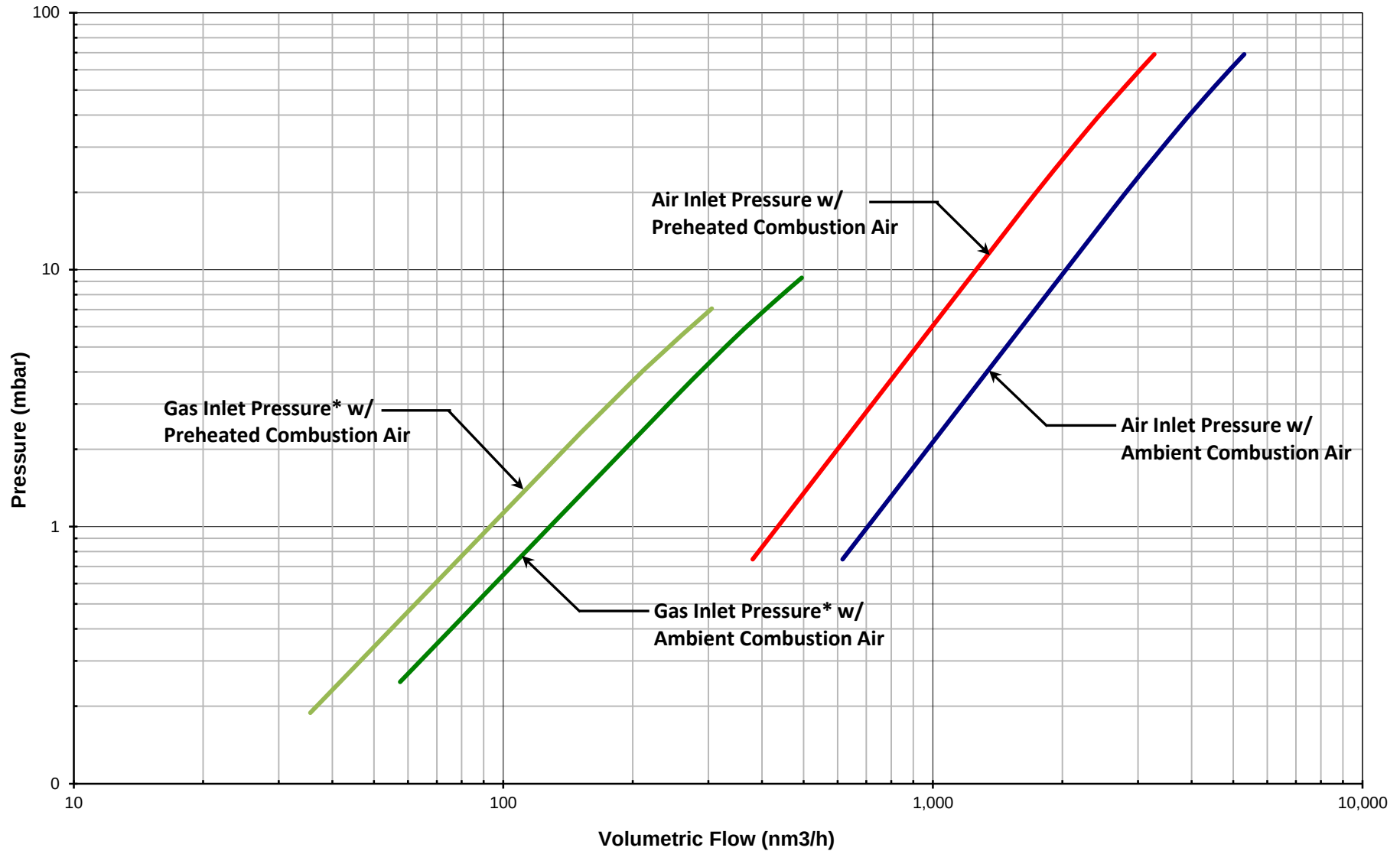
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	1,370,000 360	5,850,000 1,550	8,170,000 2,160	10,090,000 2,670	11,800,000 3,120
Air Capacity	(scfh)	14,205	60,575	84,650	104,600	122,315
	(nm ³ /hr)	381	1,623	2,268	2,802	3,277
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	0.9	1.6	2.3	2.8
	(mbar)	0.2	2.3	4.1	5.6	7.1
Flame Length (at 10% Excess Air)	(in)	60	84	90	96	108
	(mm)	1520	2130	2290	2440	2740
Flame Diameter (at 10% Excess Air)	(in)	36	42	42	48	48
	(mm)	910	1070	1070	1220	1220
Maximum Operating Excess	(Air)	250%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	2,050	8,800	N/R	N/R	N/R
	(nm ³ /hr)	54.9	235.7	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	450	1,300	N/R	N/R	N/R
	(nm ³ /hr)	12.1	34.8	N/R	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner or flame rod (1000 series only).
- Ignition limits are established with (1) IPG5413 gas pilot, (2) IPE50 spark igniter, and (3) ZMI 16 gas pilot; with metered air and fuel flows and 5kV/15mA spark ignition transformer; for limits listed as N/R ignition is Not Recommended at this capacity.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

HBG 1010/2010/3010 Pressure Curves

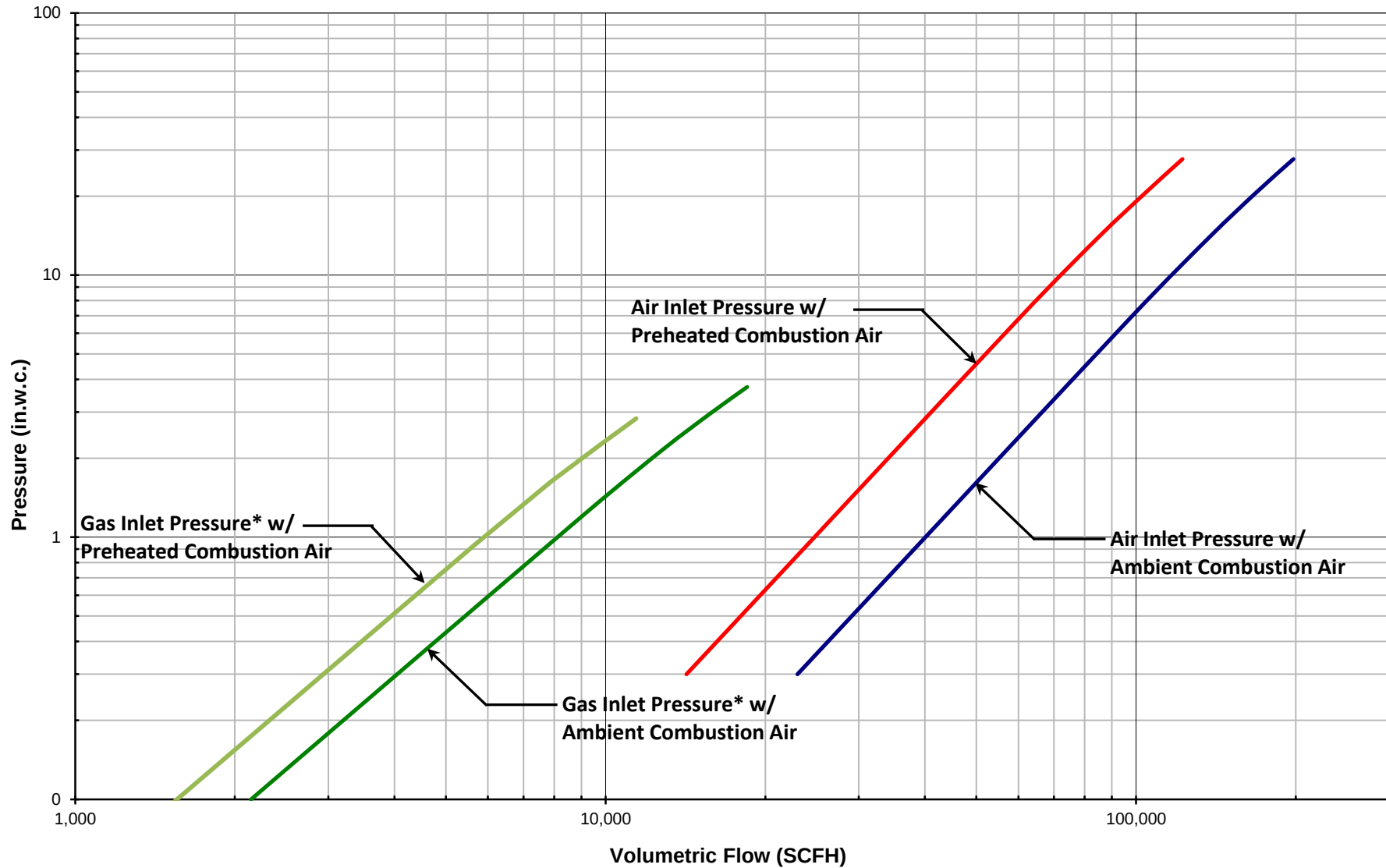
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1010/2010/3010 Pressure Curves

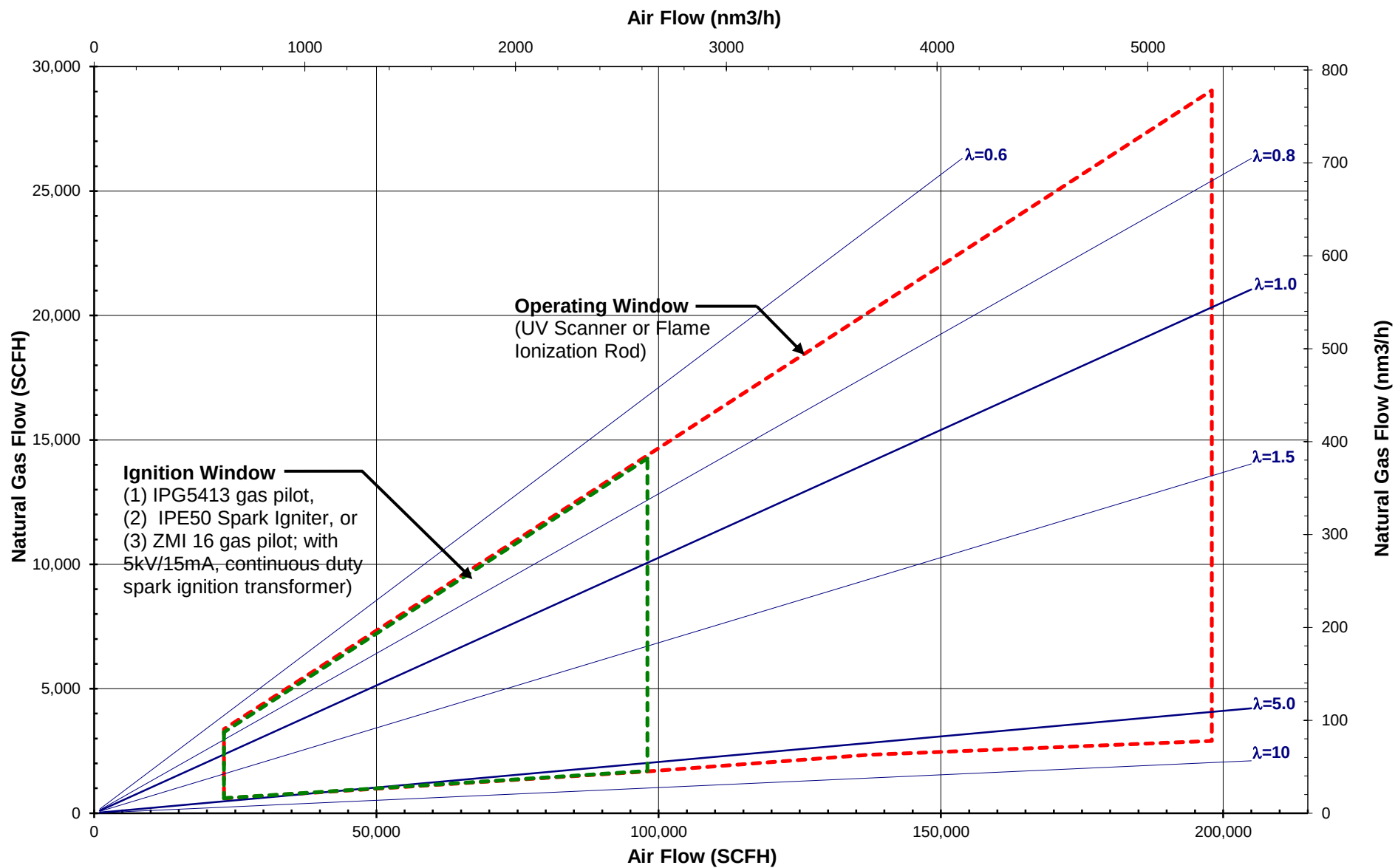
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1010/2010/3010 Operating and Ignition Window

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air



Burner Capacity Information, HBG 1012/2012

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	2,650,000 700	12,790,000 3,380	18,070,000 4,780	22,200,000 5,870	25,570,000 6,760
Air Capacity	(scfh)	27,500	132,500	187,250	230,000	265,000
	(nm ³ /hr)	737	3,549	5,016	6,161	7,099
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	1.8	3.2	4.6	5.8
	(mbar)	0.2	4.5	8.0	11.4	14.4
Flame Length (at 10% Excess Air)	(in)	72	120	144	156	168
	(mm)	1830	3050	3660	3960	4270
Flame Diameter (at 10% Excess Air)	(in)	36	42	42	48	48
	(mm)	910	1070	1070	1220	1220
Maximum Operating Excess	(Air)	300%	500%	500%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	3,750	19,000	N/R	N/R	N/R
	(nm ³ /hr)	100.5	509.0	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	750	2,300	N/R	N/R	N/R
	(nm ³ /hr)	20.1	61.6	N/R	N/R	N/R

Burner Capacity Information, HBG 3012

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

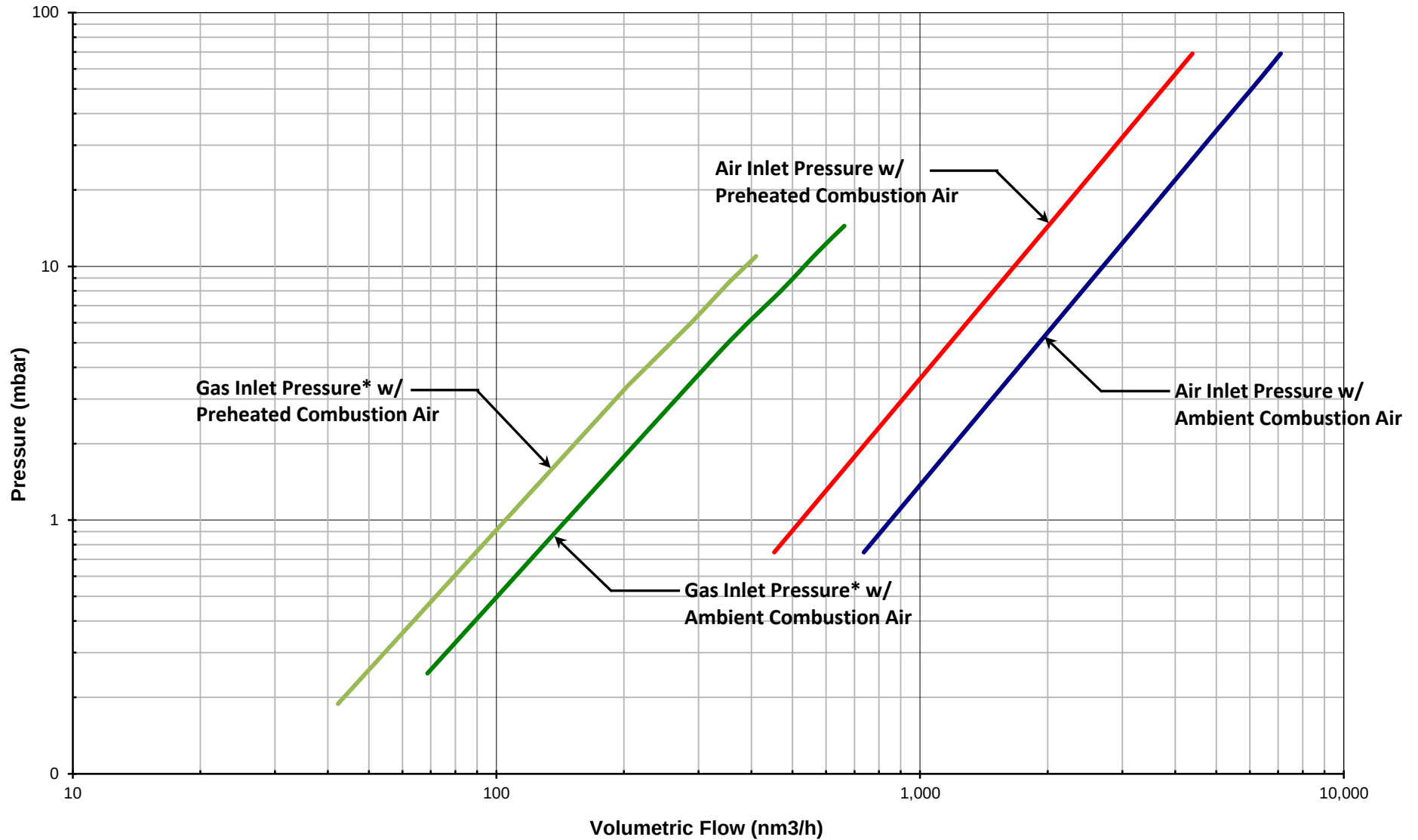
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	1,630,000 430	7,910,000 2,090	11,180,000 2,960	13,700,000 3,620	15,830,000 4,190
Air Capacity	(scfh)	16,900	81,925	115,850	142,000	164,000
	(nm ³ /hr)	453	2,195	3,103	3,804	4,393
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	1.4	2.4	3.5	4.4
	(mbar)	0.2	3.4	6.0	8.7	10.9
Flame Length (at 10% Excess Air)	(in)	66	96	108	120	132
	(mm)	1680	2440	2740	3050	3350
Flame Diameter (at 10% Excess Air)	(in)	36	42	42	48	48
	(mm)	910	1070	1070	1220	1220
Maximum Operating Excess	(Air)	250%	400%	400%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	2,400	11,500	N/R	N/R	N/R
	(nm ³ /hr)	64.3	308.1	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	500	1,700	N/R	N/R	N/R
	(nm ³ /hr)	13.4	45.5	N/R	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner.
- Ignition limits are established with (1) IPG5413 gas pilot, (2) IPE50 spark igniter, and (3) ZMI 16 gas pilot; with metered air and fuel flows and 5kV/15mA spark ignition transformer; for limits listed as N/R ignition is Not Recommended at this capacity.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

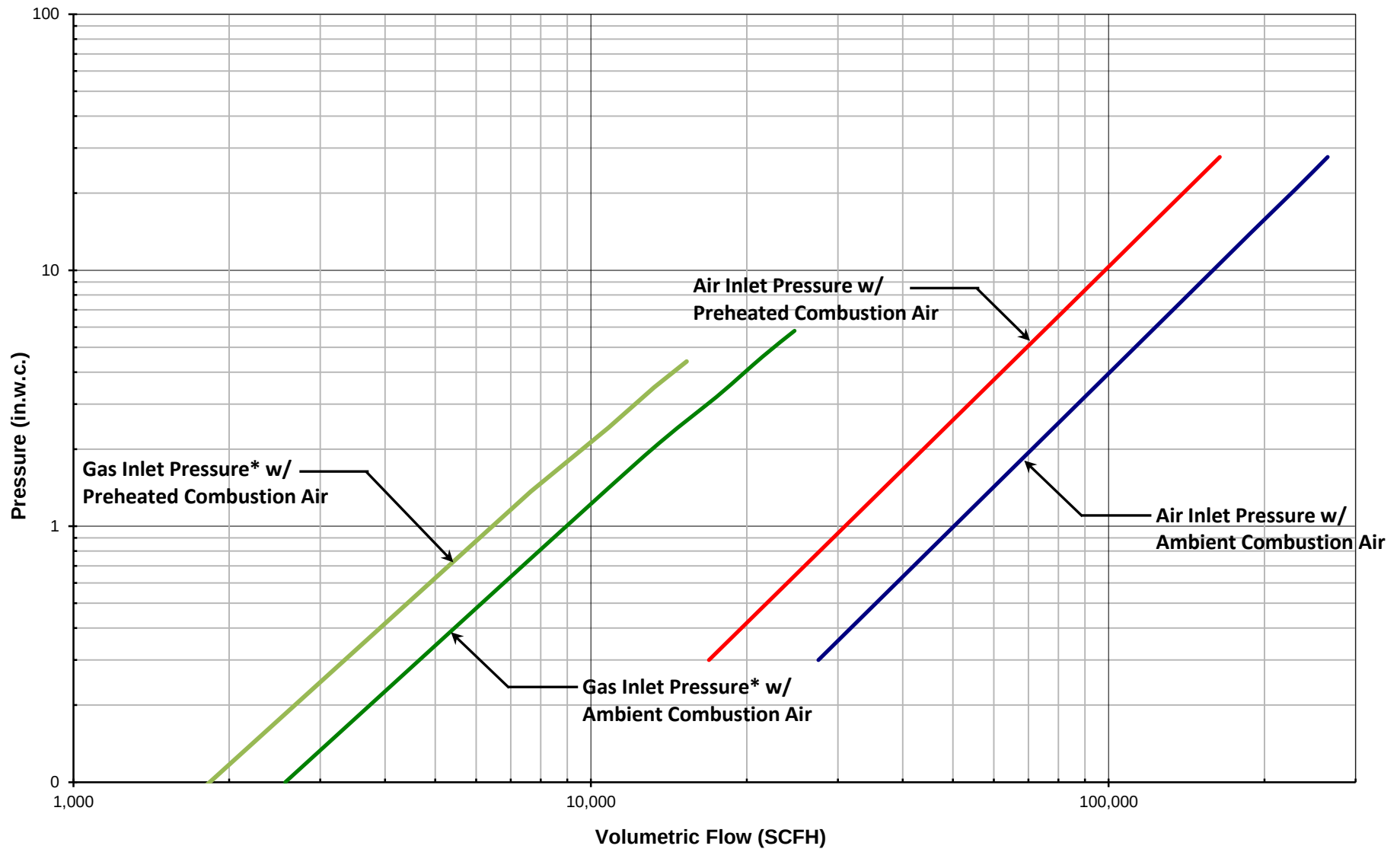
HBG 1012/2012/3012 Pressure Curves

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

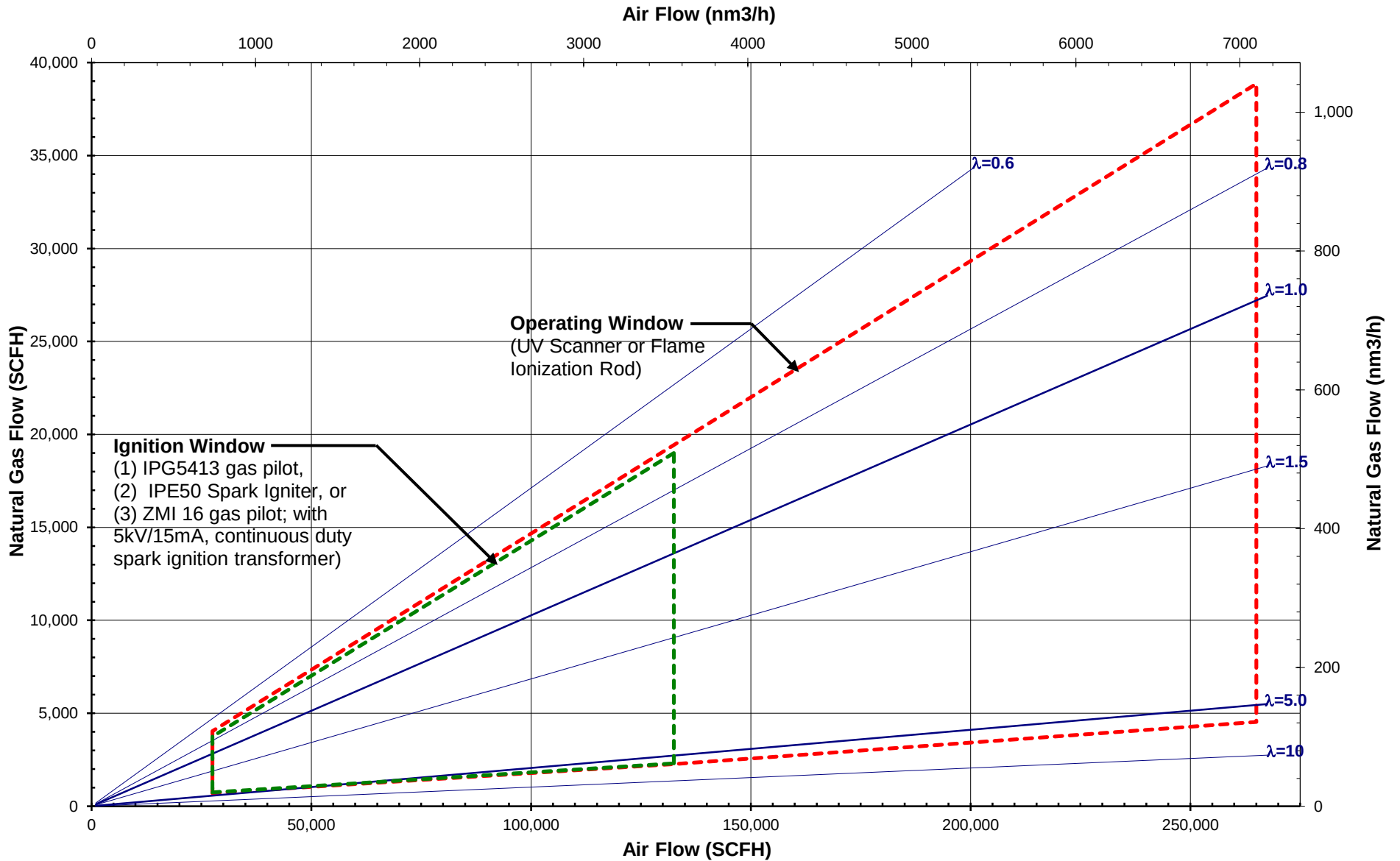
BBG 1012/2012/3012 Pressure Curves
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1012/2012/3012 Operating and Ignition Window

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air



Burner Capacity Information, HBG 1114/2114

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	3,860,000 1,020	19,110,000 5,050	27,000,000 7,140	33,200,000 8,780	38,300,000 10,130
Air Capacity	(scfh)	40,000	198,000	280,000	343,500	397,000
	(nm ³ /hr)	1,072	5,304	7,501	9,202	10,635
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.3	0.8	1.1	1.3	1.5
	(mbar)	0.6	2.0	2.7	3.2	3.7
Flame Length (at 10% Excess Air)	(in)	84	120	154	168	180
	(mm)	2130	3050	3910	4270	4570
Flame Diameter (at 10% Excess Air)	(in)	36	48	48	54	54
	(mm)	910	1220	1220	1370	1370
Maximum Operating Excess	(Air)	200%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	5,500	27,500	N/R	N/R	N/R
	(nm ³ /hr)	147.3	736.7	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	1,400	4,100	N/R	N/R	N/R
	(nm ³ /hr)	37.5	109.8	N/R	N/R	N/R

Burner Capacity Information, HBG 3114

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

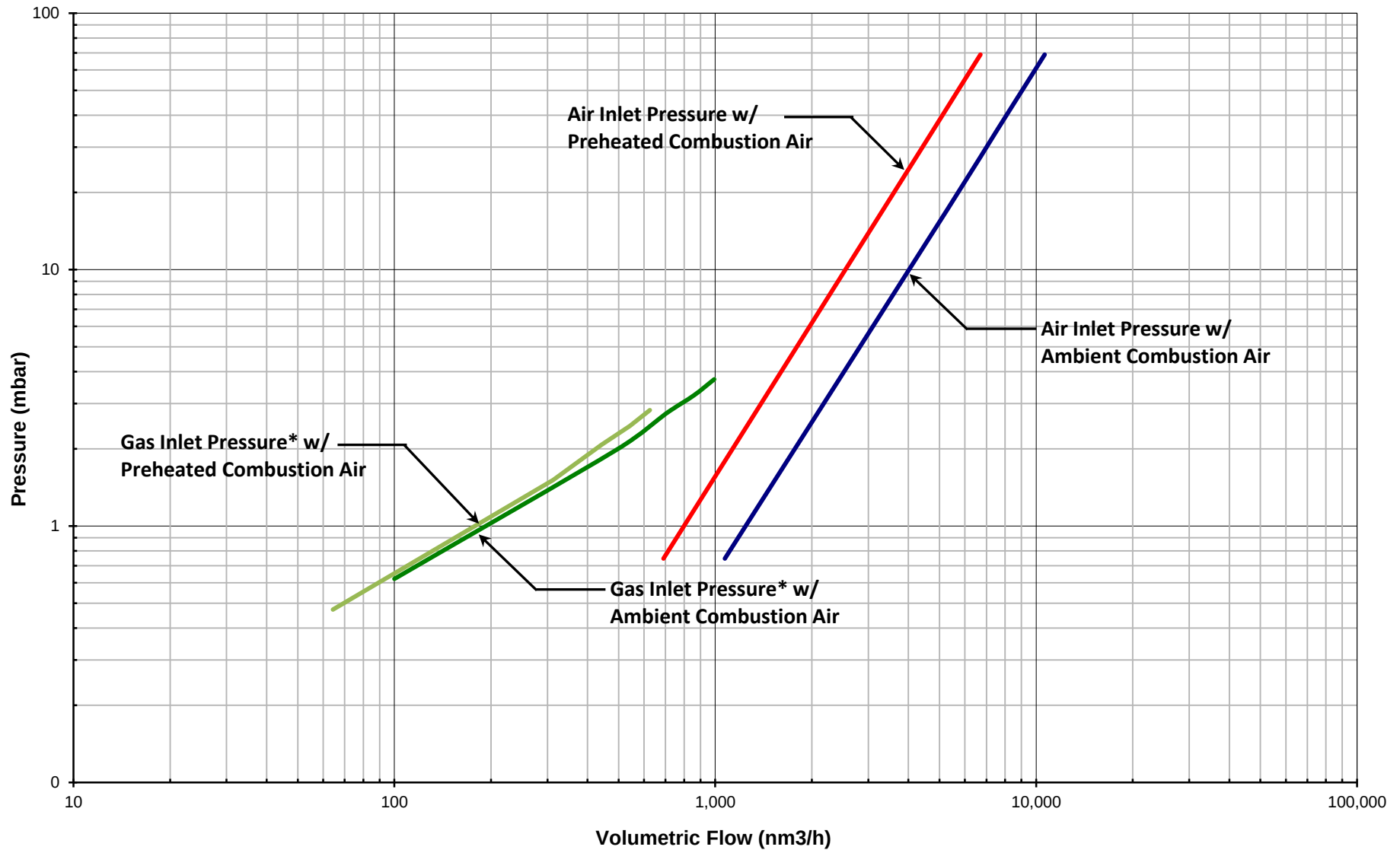
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	2,490,000 660	12,060,000 3,190	17,100,000 4,520	20,900,000 5,530	24,200,000 6,400
Air Capacity	(scfh)	25,750	125,000	177,000	216,750	250,375
	(nm ³ /hr)	690	3,349	4,741	5,806	6,707
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.2	0.6	0.8	1.0	1.1
	(mbar)	0.5	1.5	2.1	2.5	2.8
Flame Length (at 10% Excess Air)	(in)	72	96	108	120	132
	(mm)	1830	2440	2740	3050	3350
Flame Diameter (at 10% Excess Air)	(in)	36	48	48	54	54
	(mm)	910	1220	1220	1370	1370
Maximum Operating Excess	(Air)	150%	300%	300%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	3,500	18,000	N/R	N/R	N/R
	(nm ³ /hr)	93.8	482.2	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	1,100	3,000	N/R	N/R	N/R
	(nm ³ /hr)	29.5	80.4	N/R	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner.
- Ignition limits are established with Heatflam IPG5413 gas pilot, metered air and fuel flows and 5kV/15mA spark ignition transformer. Ignition limits listed as N/R - ignition is Not Recommended at this capacity and under other conditions consult Heatflam.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

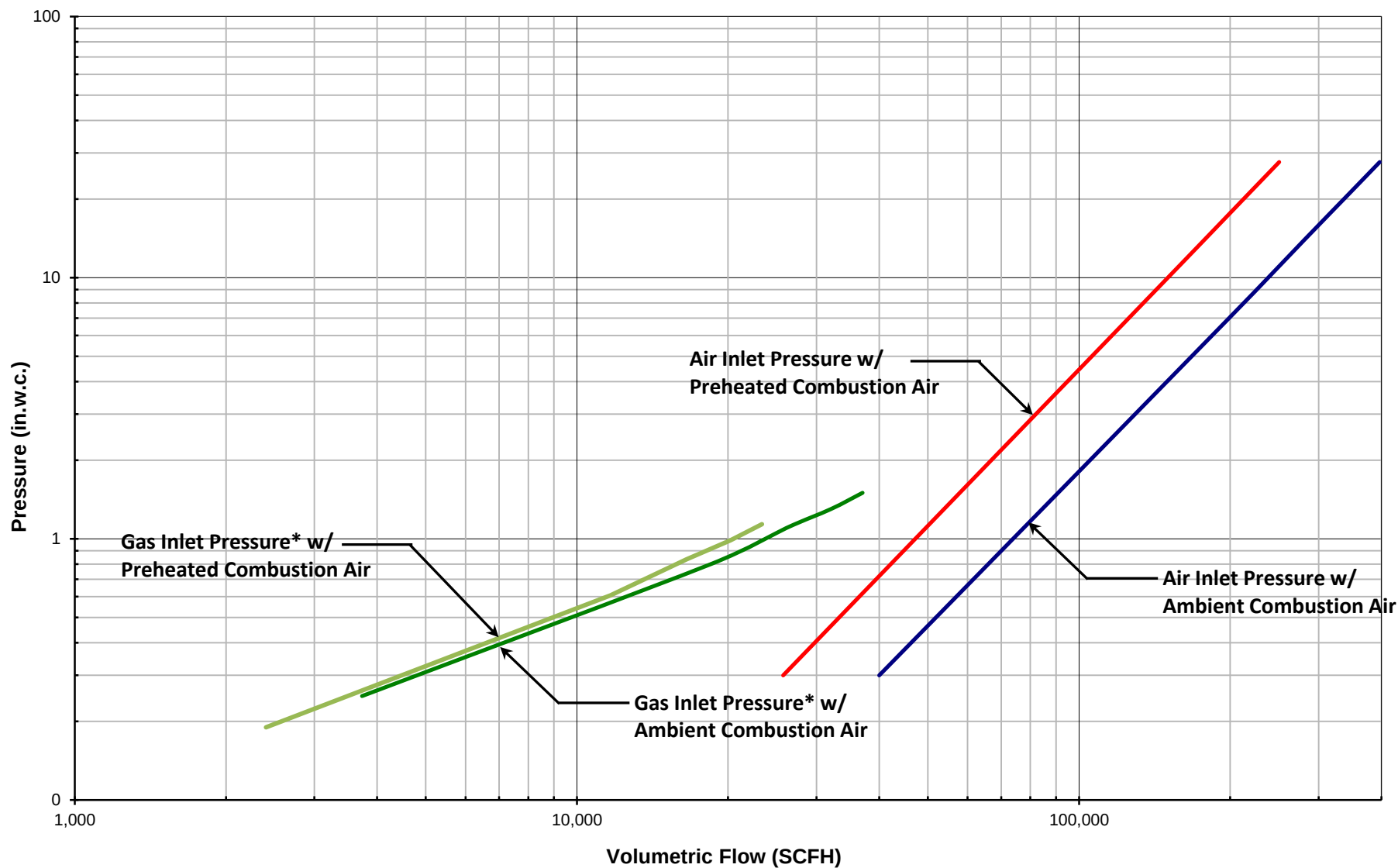
HBG 1114/2114/3114 Pressure Curves

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

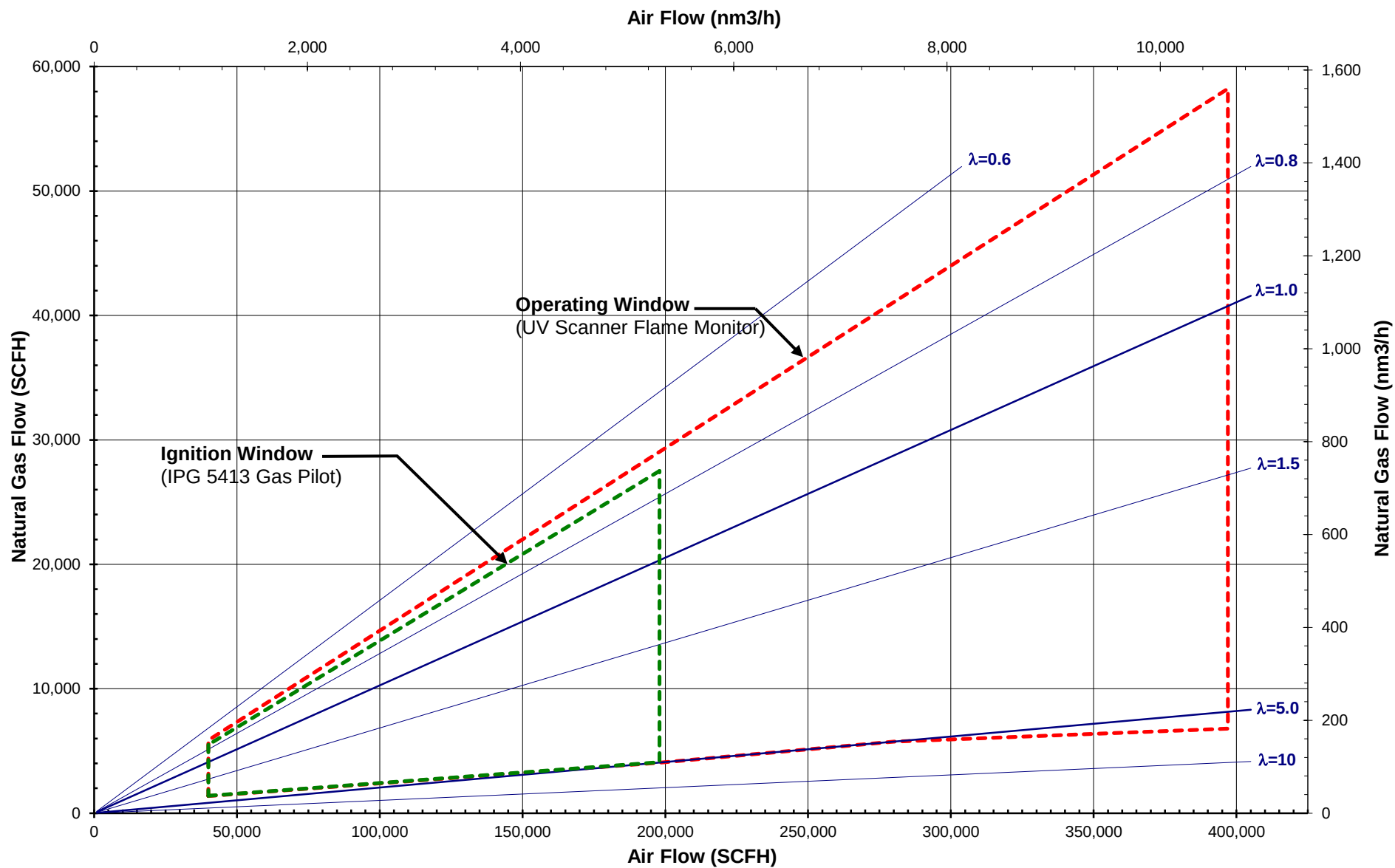
HBG 1114/2114/3114 Pressure Curves **Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.** **and Ambient and Preheated Combustion Air**



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1114/2114/3114 Operating and Ignition Window

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air



Burner Capacity Information, HBG 1118/2118

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	6,660,000 1,760	32,330,000 8,550	45,800,000 12,110	56,000,000 14,810	64,700,000 17,110
Air Capacity	(scfh)	69,000	335,000	474,500	580,000	670,000
	(nm ³ /hr)	1,848	8,974	12,711	15,537	17,948
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.3	3.7	6.6	9.3	11.8
	(mbar)	0.6	9.2	16.4	23.1	29.4
Flame Length (at 10% Excess Air)	(in)	72	168	180	192	204
	(mm)	1830	4270	4570	4880	5180
Flame Diameter (at 10% Excess Air)	(in)	36	48	48	54	60
	(mm)	910	1220	1220	1370	1520
Maximum Operating Excess	(Air)	250%	400%	500%	600%	600%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	10,000	45,000	N/R	N/R	N/R
	(nm ³ /hr)	267.9	1,205.5	NR	N/R	N/R
Minimum Ignition Gas	(scfh)	2,100	6,900	N/R	N/R	N/R
	(nm ³ /hr)	56.3	184.8	NR	N/R	N/R

Burner Capacity Information, HBG 3118

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

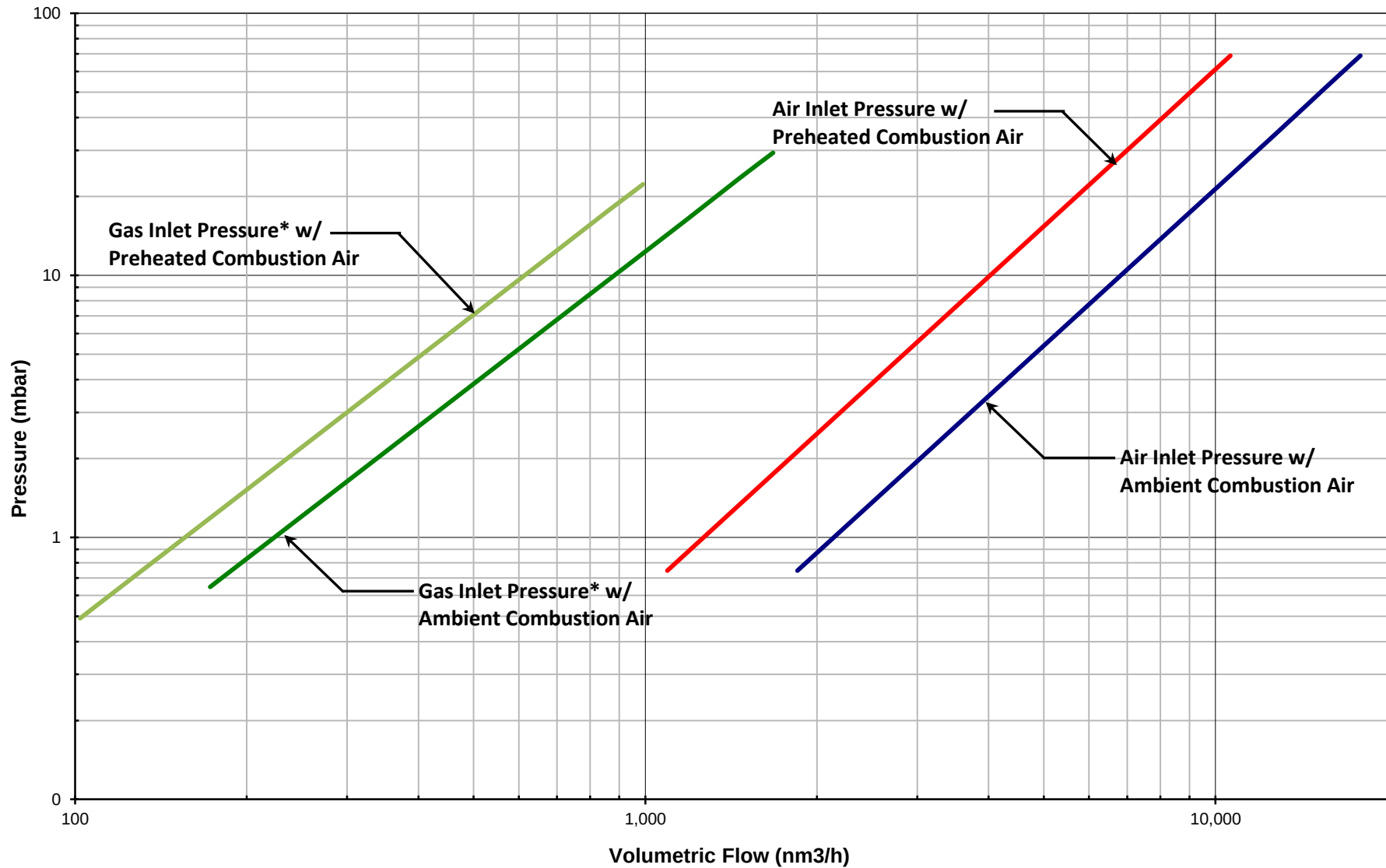
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	3,940,000 1,040	19,070,000 5,040	27,000,000 7,140	33,100,000 8,750	38,300,000 10,130
Air Capacity	(scfh)	40,800	197,600	280,000	343,000	396,400
	(nm ³ /hr)	1,093	5,293	7,501	9,188	10,619
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.2	2.8	5.0	7.1	9.0
	(mbar)	0.5	6.9	12.5	17.6	22.3
Flame Length (at 10% Excess Air)	(in)	72	132	144	156	168
	(mm)	1830	3350	3660	3960	4270
Flame Diameter (at 10% Excess Air)	(in)	36	48	48	48	54
	(mm)	910	1220	1220	1220	1370
Maximum Operating Excess	(Air)	200%	300%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	5,500	27,500	N/R	N/R	N/R
	(nm ³ /hr)	147.3	736.7	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	1,400	5,000	N/R	N/R	N/R
	(nm ³ /hr)	37.5	133.9	N/R	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner.
- Ignition limits are established with Heatflam IPG5413 gas pilot, metered air and fuel flows and 5kV/15mA spark ignition transformer. Ignition is Not Recommended at this capacity and under other conditions consult Heatflam.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

HBG 1118/2118/3118 Pressure Curves

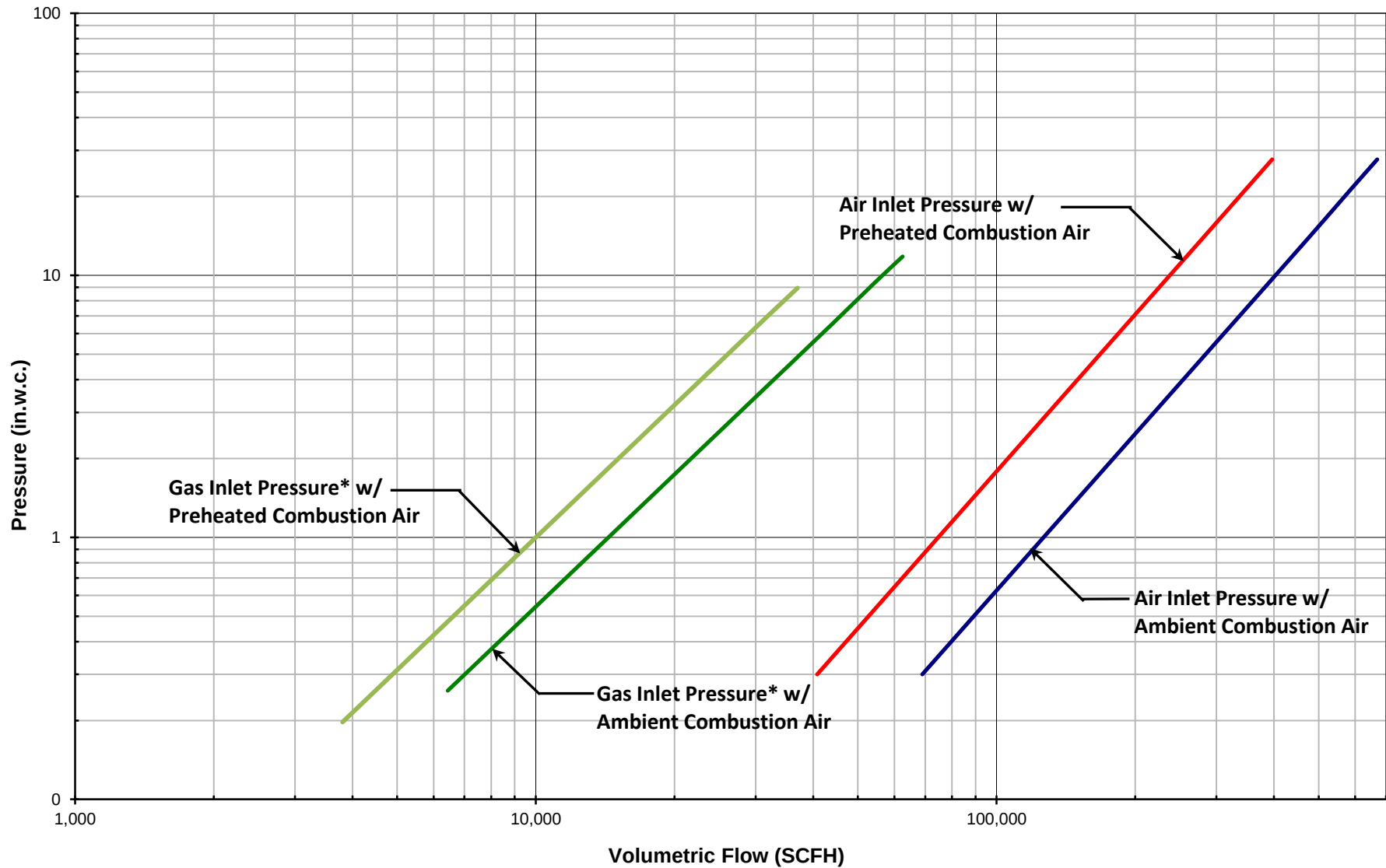
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for BBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1118/2118/3118 Pressure Curves

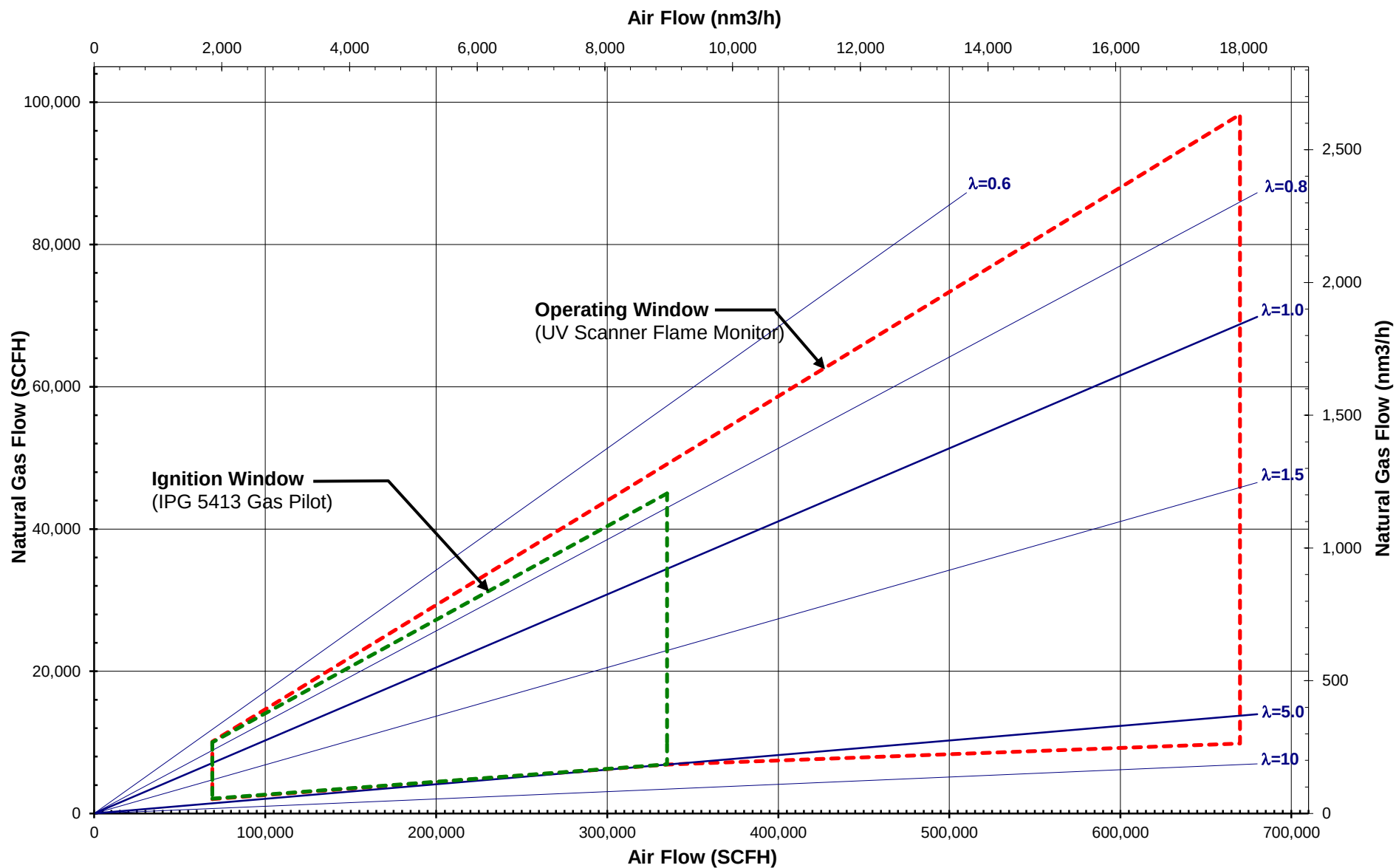
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1118/2118/3118 Operating and Ignition Window

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air



Burner Capacity Information, HBG 1120/2120

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	9,000,000 2,380	43,330,000 11,460	61,300,000 16,210	75,000,000 19,840	86,700,000 22,930
Air Capacity	(scfh)	93,288	449,013	635,000	776,780	898,025
	(nm ³ /hr)	2,499	12,028	17,010	20,808	24,056
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.1	0.6	1.1	1.7	2.2
	(mbar)	0.1	1.4	2.7	4.1	5.5
Flame Length (at 10% Excess Air)	(in)	48	168	192	192	216
	(mm)	1220	4270	4880	4880	5490
Flame Diameter (at 10% Excess Air)	(in)	24	48	48	54	54
	(mm)	610	1220	1220	1370	1370
Maximum Operating Excess	(Air)	250%	500%	600%	700%	800%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	11,268	54,235	N/R	N/R	N/R
	(nm ³ /hr)	301.8	1,452.9	NR	N/R	N/R
Minimum Ignition Gas	(scfh)	2,737	7,683	N/R	N/R	N/R
	(nm ³ /hr)	73.3	205.8	NR	N/R	N/R

Burner Capacity Information, HBG 3120

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

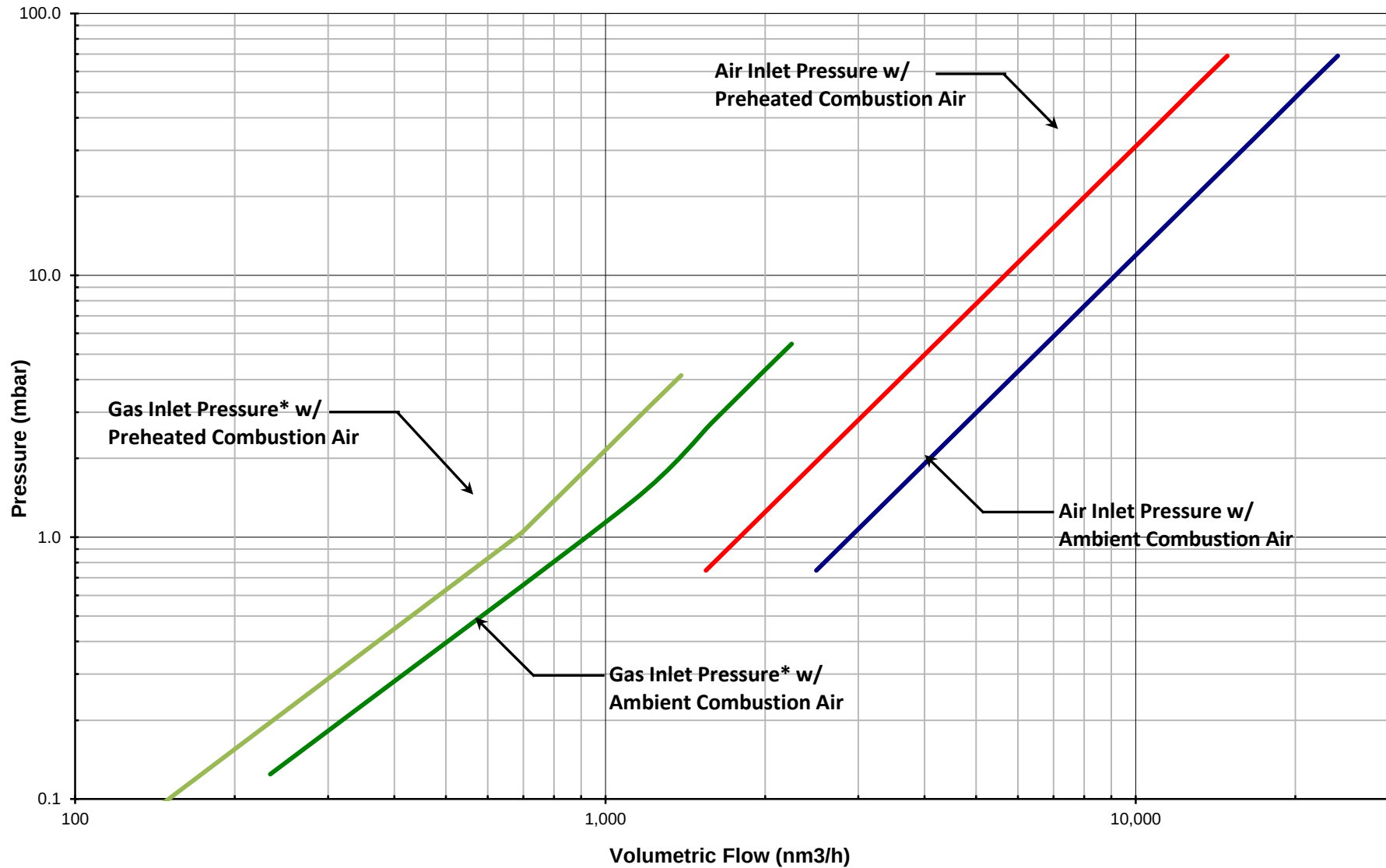
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	5,570,000 1,470	26,830,000 7,100	37,900,000 10,020	46,400,000 12,270	53,700,000 14,200
Air Capacity	(scfh)	57,753	277,975	393,116	480,889	555,949
	(nm ³ /hr)	1,547	7,446	10,531	12,882	14,893
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.0	0.4	0.8	1.3	1.7
	(mbar)	0.1	1.0	2.1	3.1	4.2
Flame Length (at 10% Excess Air)	(in)	72	132	144	156	168
	(mm)	1830	3350	3660	3960	4270
Flame Diameter (at 10% Excess Air)	(in)	36	48	48	48	54
	(mm)	910	1220	1220	1220	1370
Maximum Operating Excess	(Air)	325%	463%	602%	741%	741%
	(Fuel)	30%	30%	30%	30%	30%
Maximum Ignition Gas	(scfh)	5,500	27,500	N/R	N/R	N/R
	(nm ³ /hr)	147.3	736.7	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	1,400	5,000	N/R	N/R	N/R
	(nm ³ /hr)	37.5	133.9	N/R	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner.
- Ignition limits are established with Heatflam IPG5413 gas pilot, metered air and fuel flows and 5kV/15mA spark ignition transformer. Ignition is Not Recommended at this capacity and under other conditions consult Heatflam.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

HBG 1120/2120/3120 Pressure Curves

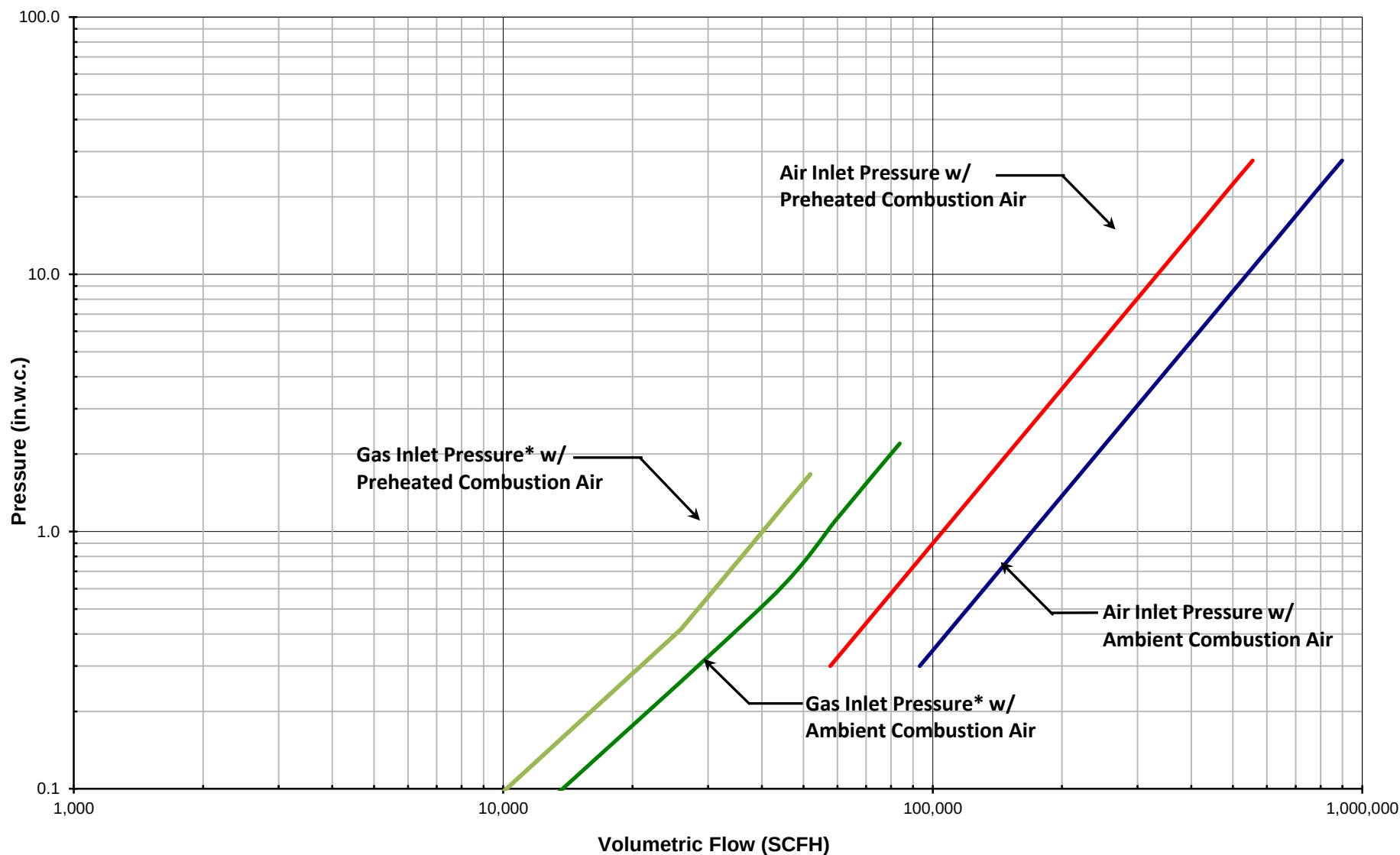
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1120/2120/3120 Pressure Curves

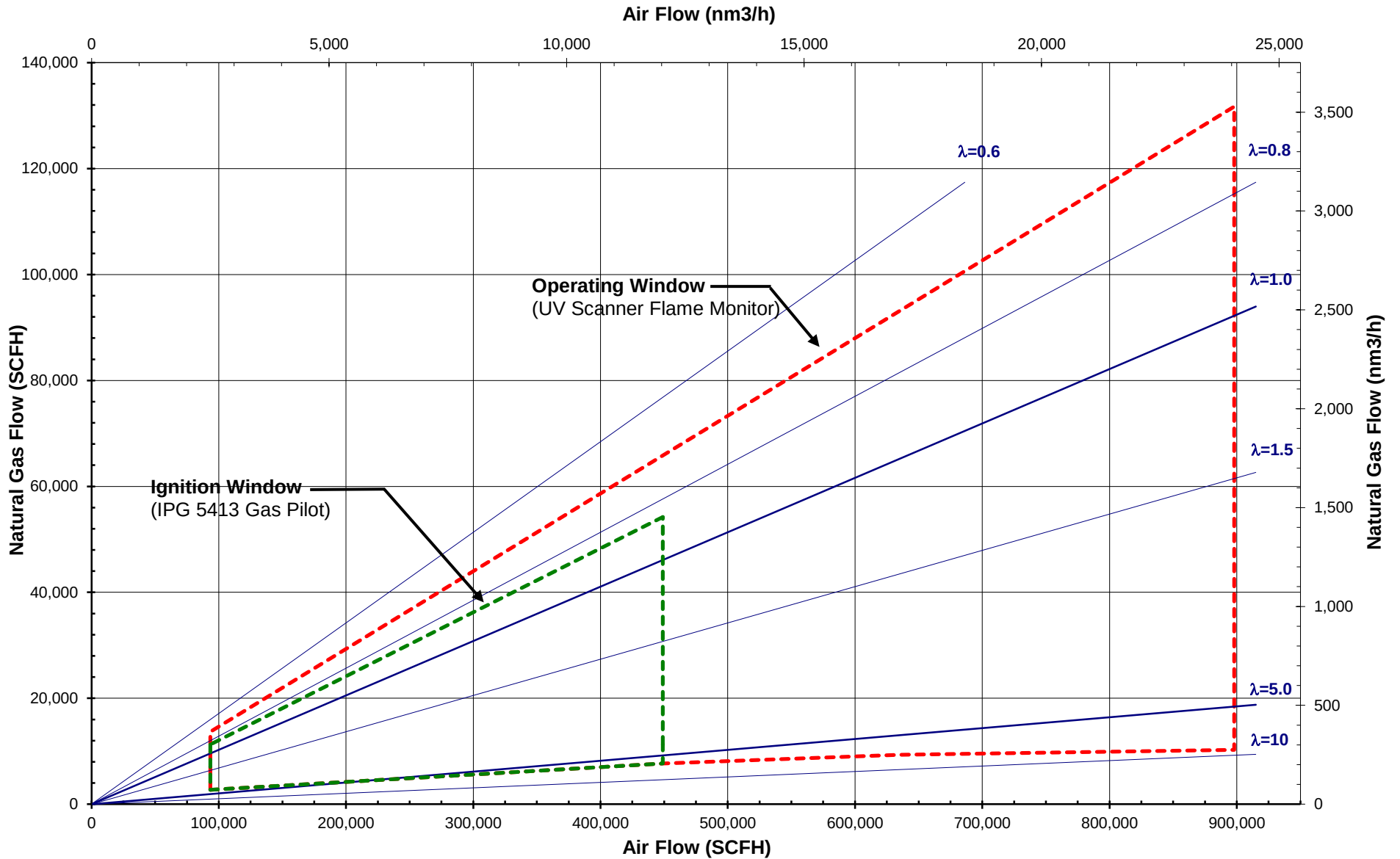
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1120/2120/3120 Operating and Ignition Window

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air



Burner Capacity Information, HBG 1124/2124

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	12,550,000 3,320	61,770,000 16,340	87,300,000 23,090	106,200,000 28,090	123,000,000 32,530
Air Capacity	(scfh)	130,000	640,000	905,000	1,100,000	1,275,000
	(nm ³ /hr)	3,482	17,144	24,243	29,467	34,155
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.3	1.4	2.0	2.5	2.9
	(mbar)	0.6	3.4	4.9	6.1	7.2
Flame Length (at 10% Excess Air)	(in)	72	250	275	285	300
	(mm)	1830	6350	6990	7240	7620
Flame Diameter (at 10% Excess Air)	(in)	36	48	54	60	60
	(mm)	910	1220	1370	1520	1520
Maximum Operating Excess	(Air)	100%	400%	600%	600%	600%
	(Fuel)	15%	15%	15%	15%	15%
Maximum Ignition Gas	(scfh)	15,000	70,000	N/R	N/R	N/R
	(nm ³ /hr)	401.8	1,875.2	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	6,800	13,500	N/R	N/R	N/R
	(nm ³ /hr)	182.2	361.6	N/R	N/R	N/R

Burner Capacity Information, HBG 3124

NATURAL GAS, 900°F/482°C PREHEATED COMBUSTION AIR OPERATION

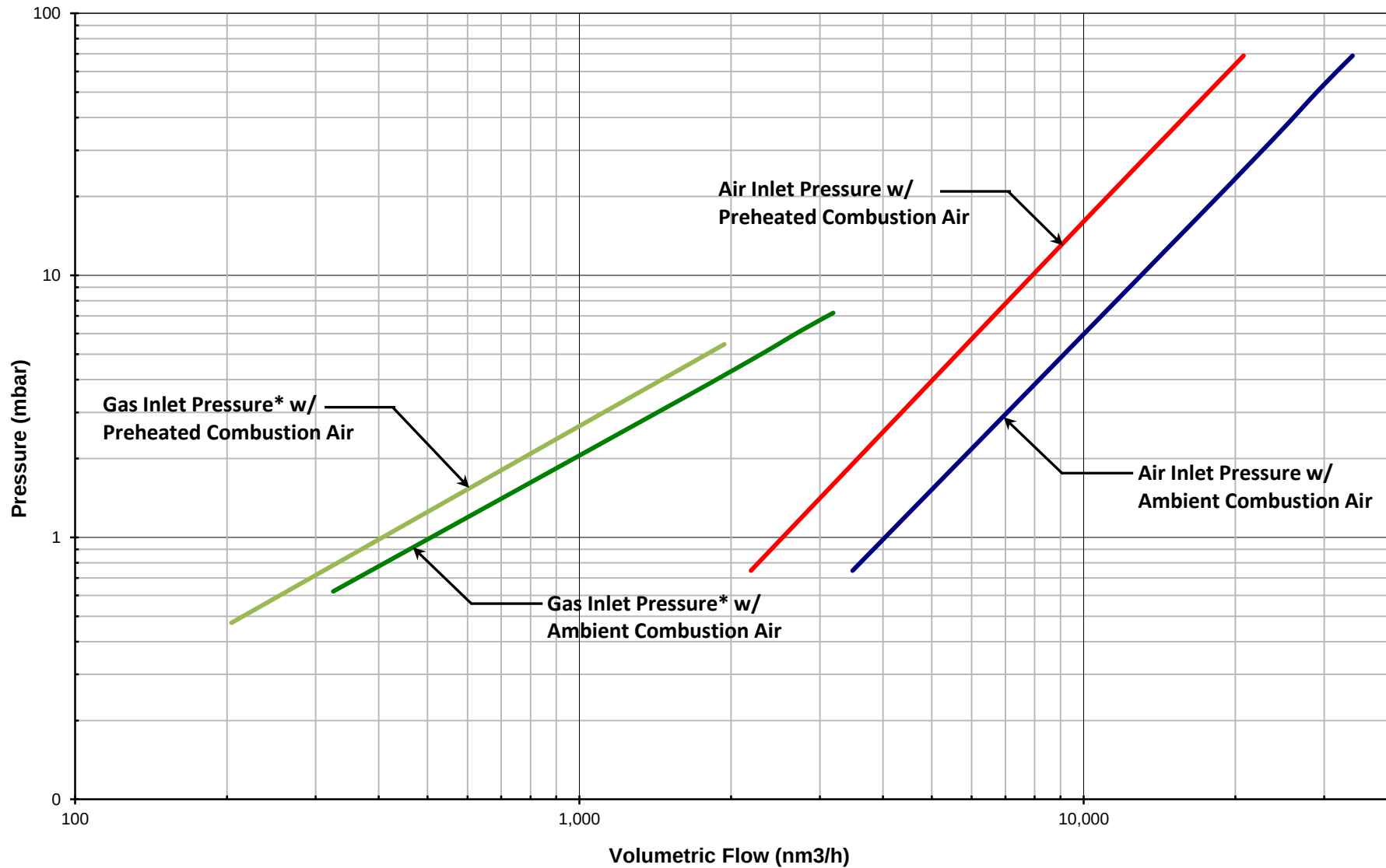
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	(BTU/hr) (kW)	7,890,000 2,090	37,350,000 9,880	52,800,000 13,970	64,800,000 17,140	74,800,000 19,780
Air Capacity	(scfh)	81,720	387,000	547,600	671,100	775,200
	(nm ³ /hr)	2,189	10,367	14,669	17,977	20,766
Air Inlet Pressure	(in.w.c.)	0.3	6.9	13.9	20.8	27.7
	(mbar)	0.7	17.2	34.5	51.7	68.9
Gas Inlet Pressure	(in.w.c.)	0.2	1.0	1.5	1.9	2.2
	(mbar)	0.5	2.6	3.7	4.7	5.5
Flame Length (at 10% Excess Air)	(in)	72	96	150	200	250
	(mm)	1830	2440	3810	5080	6350
Flame Diameter (at 10% Excess Air)	(in)	36	48	48	60	60
	(mm)	910	1220	1220	1520	1520
Maximum Operating Excess	(Air)	100%	300%	500%	500%	500%
	(Fuel)	15%	15%	15%	15%	15%
Maximum Ignition Gas	(scfh)	9,750	40,000	N/R	N/R	N/R
	(nm ³ /hr)	261.2	1,071.5	N/R	N/R	N/R
Minimum Ignition Gas	(scfh)	4,500	10,000	N/R	N/R	N/R
	(nm ³ /hr)	120.5	267.9	N/R	N/R	N/R

NOTES:

- Capacities based on Natural Gas with HHV of 1034 BTU/ft³ (Standard), and LHV of 10.21 kWh/nm³ (Metric), 0.59 S.G., and a stoichiometric ratio of 9.74:1 with burner firing into chamber under no pressure at 10% excess air.
- Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
- Gas inlet pressure given for reference only and should not be used for measuring fuel flow to the burner.
- Flame lengths measured from end of the combustion tile.
- Flame detection via UV scanner.
- Ignition limits are established with Heatflam 58155 gas pilot, metered air and fuel flows and 5kV/15mA spark ignition transformer. Ignition is Not Recommended at this capacity.
- Burner is suitable for use on gaseous fuels other than Natural Gas and with combustion air other than ambient temperature, consult Heatflam.

HBG 1124/2124/3124 Pressure Curves

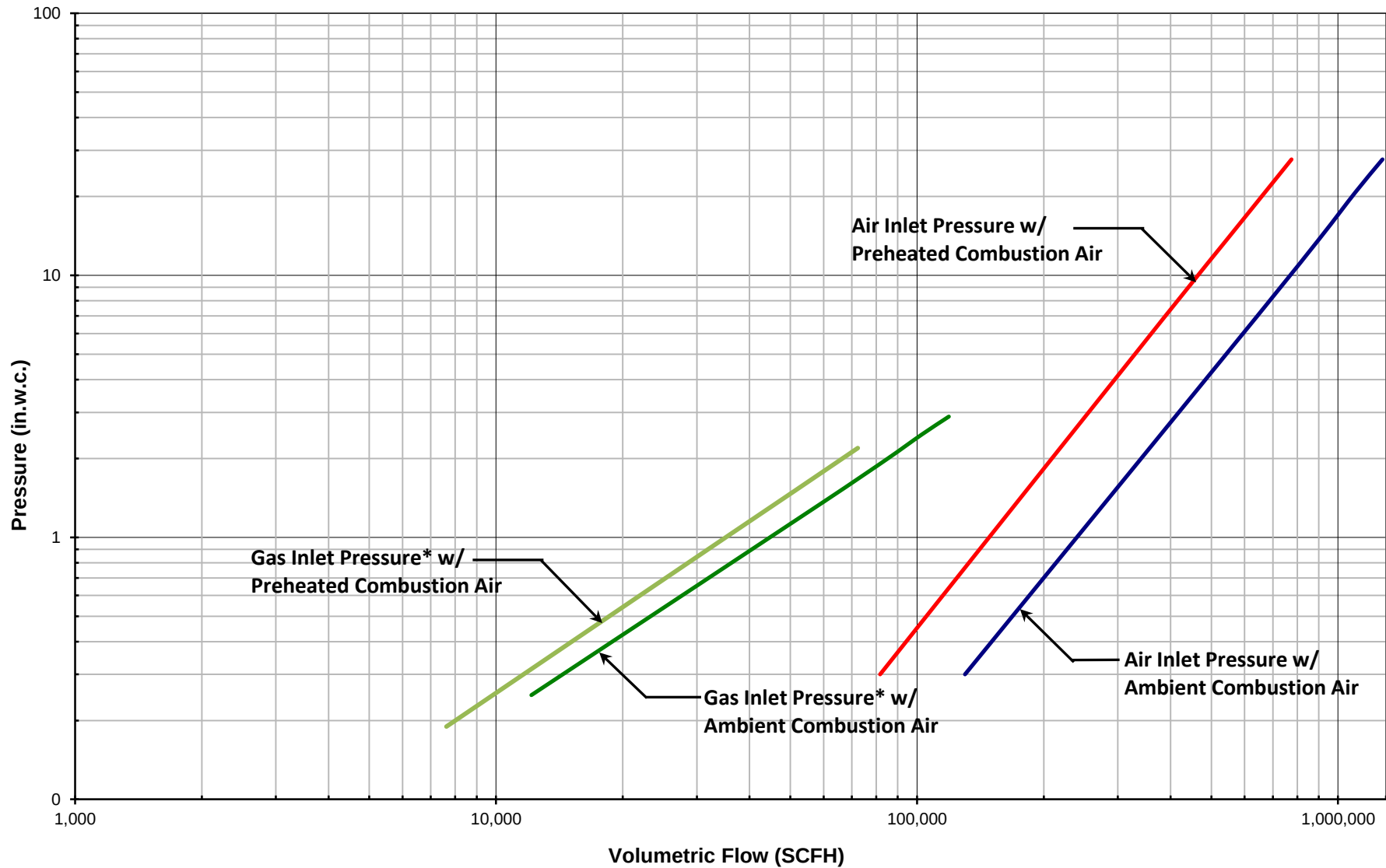
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1124/2124/3124 Pressure Curves

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient and Preheated Combustion Air



*Note: Gas Inlet Pressure for HBG burner is not suitable for fuel flow measurement and is given for component sizing and reference only

HBG 1124/2124/3124 Operating and Ignition Window

Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G.
and Ambient Combustion Air

