Burner Capacity Information

HBC 1104/2104 Series 2
HBC 3104 Series 2
HBC 1106/2106 Series 9
HBC 3106 Series 9
HBC 1108/2108 Series 16
HBC 3108 Series 16
HBC 1110/2110 Series 23
HBC 3110 Series 23
HBC 1112/2112 Series 30
HBC 3112 Series 30
HBC 1114/2114 Series 37
HBC 3114 Series 37
HBC 1118/2118 Series 44
HBC 3118 Series 44
HBC 1120/2120 Series 51
HBC 3120 Series 51
HBC 1124/2124 Series 58
HBC 3124 Series 58

Burner Capacity Information, HBC 1104/2104

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**440,000**	**1,670,000**	**2,320,000**	**2,810,000**	**3,200,000**
	(kW)	**120**	**440**	**610**	**740**	**850**
Secondary Air Capacity	(scfh)	3,320	16,100	22,800	27,900	32,000
	(nm^3/hr)	89	431	611	747	857
Secondary 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
Primary Air Capacity	(scfh)	1,200	1,200	1,200	1,200	1,200
	(nm^3/hr)	32	32	32	32	32
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
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	36	60	66	72
	(mm)	760	910	1520	1680	1830
Flame Diameter (at 10% Excess Air	(in)	12	12	16	16	24
	(mm)	300	300	410	410	610
Maximum Operating Excess	(Air)	100%	400%	600%	600%	600%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3104

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**310,000**	**1,080,000**	**1,480,000**	**1,780,000**	**2,030,000**
	(kW)	**80**	**290**	**390**	**470**	**540**
Secondary Air Capacity	(scfh)	2,055	9,967	14,115	17,272	19,811
	(nm^3/hr)	55	267	378	463	531
Secondary 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
Primary Air Capacity	(scfh)	1,200	1,200	1,200	1,200	1,200
	(nm^3/hr)	32	32	32	32	32
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
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)	23	27	45	50	54
	(mm)	570	690	1140	1260	1370
Flame Diameter (at 10% Excess Air	(in)	11	11	14	14	22
	(mm)	270	270	370	370	550
Maximum Operating Excess	(Air)	80%	320%	480%	480%	480%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5411 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1104/2104

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**480,000**	**1,540,000**	**2,100,000**	**2,530,000**	**2,870,000**
	(kW)	**130**	**410**	**560**	**670**	**760**
Secondary Air Capacity	(scfh)	3,320	16,100	22,800	27,900	32,000
	(nm^3/hr)	89	431	611	747	857
Secondary 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
Primary Air Capacity	(scfh)	2,400	2,400	2,400	2,400	2,400
	(nm^3/hr)	64	64	64	64	64
Primary Air Inlet Pressure	(in.w.c.)	27.7	27.7	27.7	27.7	27.7
	(mbar)	68.9	68.9	68.9	68.9	68.9
Fuel Oil Flow(at 20% Excess Air)	(gph)	3.5	11.2	15.2	18.3	20.8
	(lph)	13	42	58	69	79
Flame Length (at 20% Excess Air)	(in)	36	60	66	72	84
	(mm)	910	1520	1680	1830	2130
Flame Diameter (at 20% Excess Air	(in)	12	16	24	24	24
	(mm)	300	410	610	610	610
Maximum Operating Excess	(Air)	100%	200%	250%	250%	275%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3104

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**370,000**	**1,030,000**	**1,380,000**	**1,640,000**	**1,850,000**
	(kW)	**100**	**270**	**370**	**430**	**490**
Secondary Air Capacity	(scfh)	2,055	9,967	14,115	17,272	19,811
	(nm^3/hr)	55	267	378	463	531
Secondary 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
Primary Air Capacity	(scfh)	2,400	2,400	2,400	2,400	2,400
	(nm^3/hr)	64	64	64	64	64
Primary Air Inlet Pressure	(in.w.c.)	27.7	27.7	27.7	27.7	27.7
	(mbar)	68.9	68.9	68.9	68.9	68.9
Fuel Oil Flow(at 20% Excess Air)	(gph)	2.7	7.5	10.0	11.9	13.4
	(lph)	10	28	38	45	51
Flame Length(at 20% Excess Air)	(in)	27	45	50	54	63
	(mm)	690	1140	1260	1370	1600
Flame Diameter(at 20% Excess Air)	(in)	11	14	22	22	22
	(mm)	270	370	550	550	550
Maximum Operating Excess	(Air)	80%	160%	200%	200%	220%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5411 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1104/2104

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

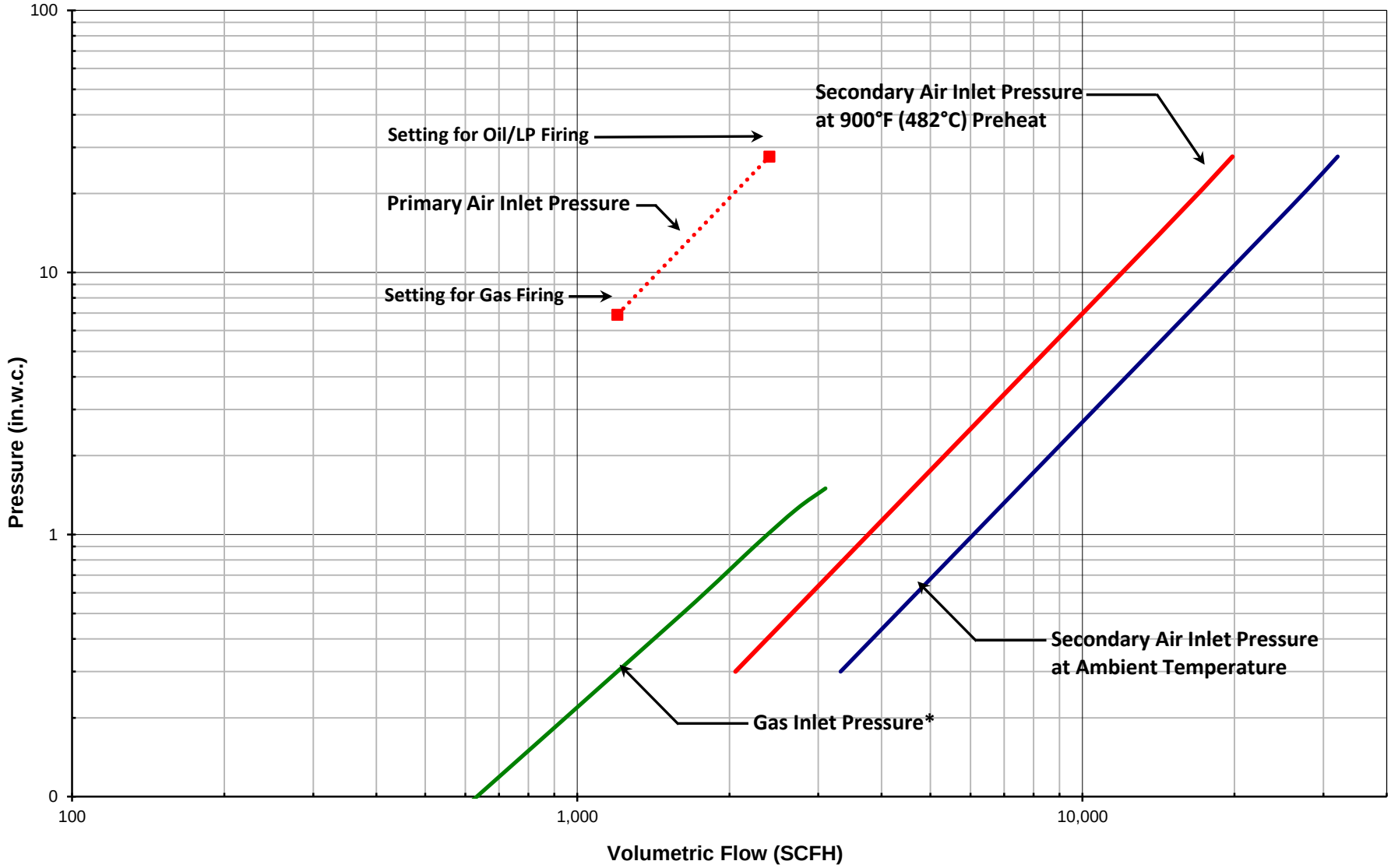
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**390,000**	**1,480,000**	**2,050,000**	**2,490,000**	**2,840,000**
	(kW)	**100**	**390**	**540**	**660**	**750**
Secondary Air Capacity	(scfh)	3,320	16,100	22,800	27,900	32,000
	(nm^3/hr)	89	431	611	747	857
Secondary 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
Primary Air Capacity	(scfh)	920	920	920	920	920
	(nm^3/hr)	25	25	25	25	25
Primary Air Inlet Pressure	(in.w.c.)	4.0	4.0	4.0	4.0	4.0
	(mbar)	10.0	10.0	10.0	10.0	10.0
Atomizing Air Capacity	(scfh)	300	330	330	330	330
	(nm^3/hr)	8	9	9	9	9
Atomizing Air Inlet Pressure	(psig)	34	54	60	61	62
	(bar)	2.3	3.7	4.1	4.2	4.3
Fuel Oil Flow	(gph)	2.6	10	14	17	19
	(lph)	10	38	53	64	72
Fuel Oil Inlet Pressure	(psig)	34	56	62	63	64
	(bar)	2.3	3.9	4.3	4.3	4.4
Flame Length(at 20% Excess Air)	(in)	16	42	48	54	60
	(mm)	410	1070	1220	1370	1520
Flame Diameter(at 20% Excess Air)	(in)	12	16	16	24	24
	(mm)	300	410	410	610	610
Maximum Operating Excess	(Air)	50%	100%	125%	150%	200%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5411 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1104/2104/3104 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 HBC burner is not suitable for fuel flow measurement and is given for component sizing and reference onl

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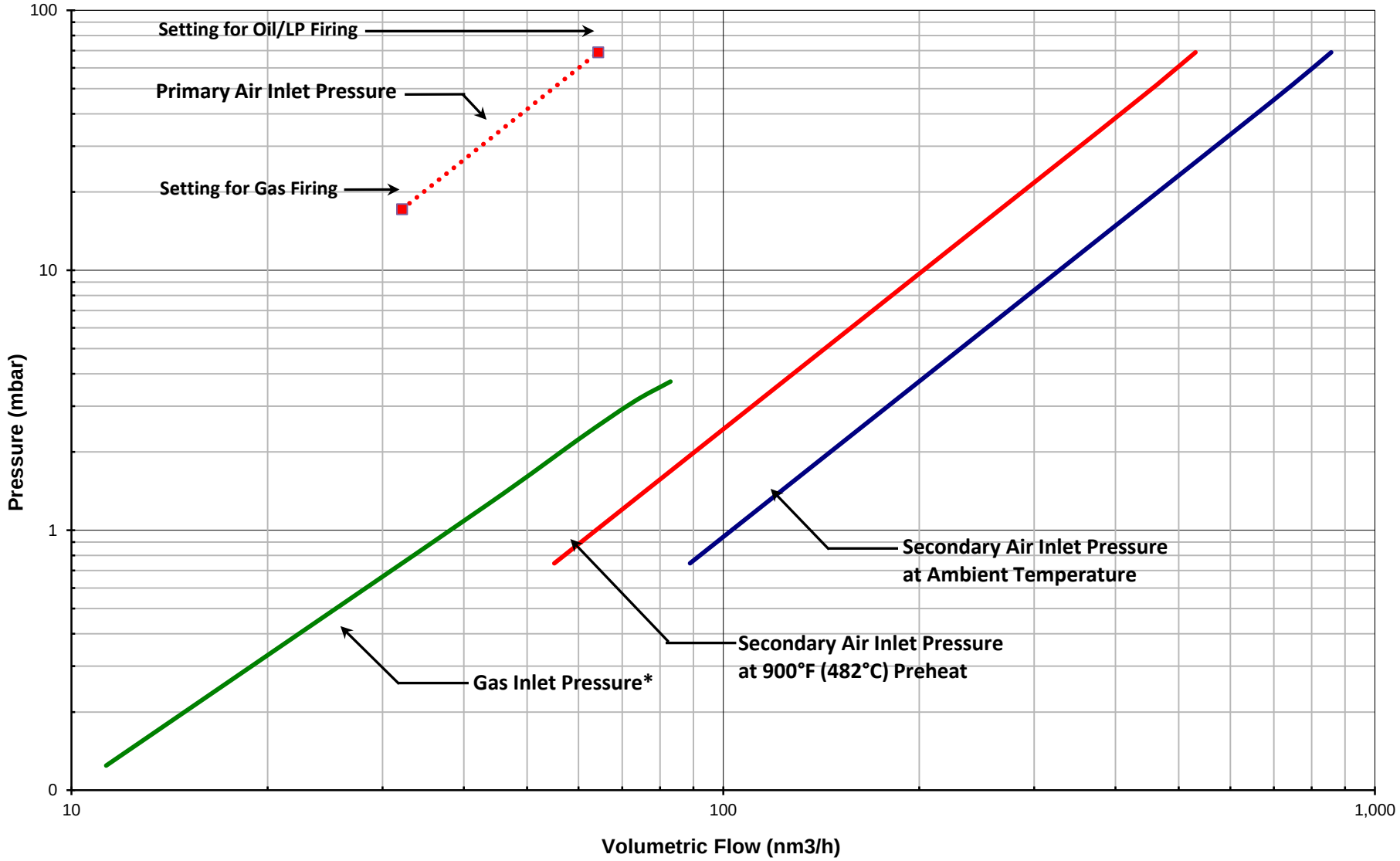
HBC 1104/2104/3104 Pressure Curves

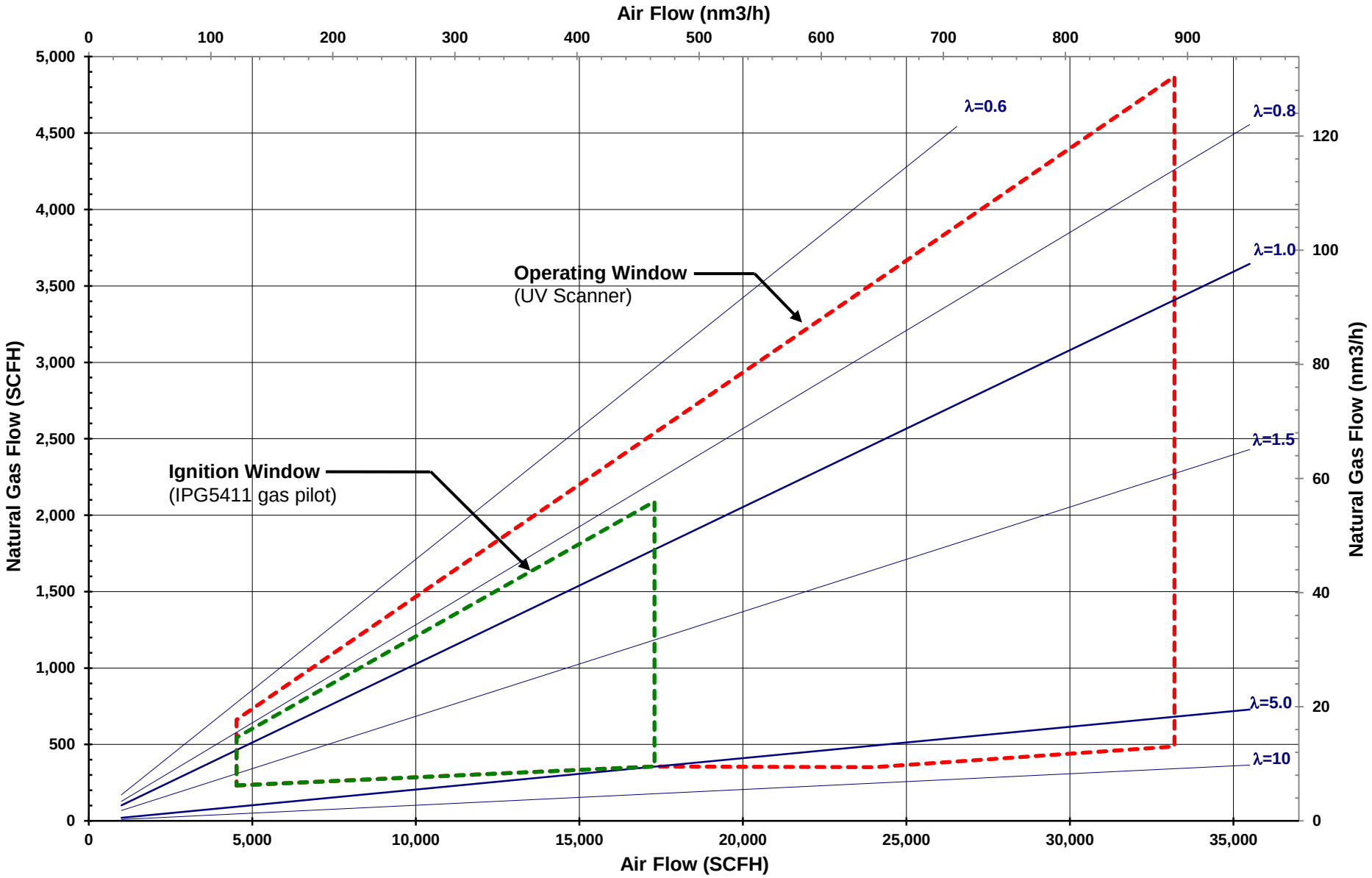
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

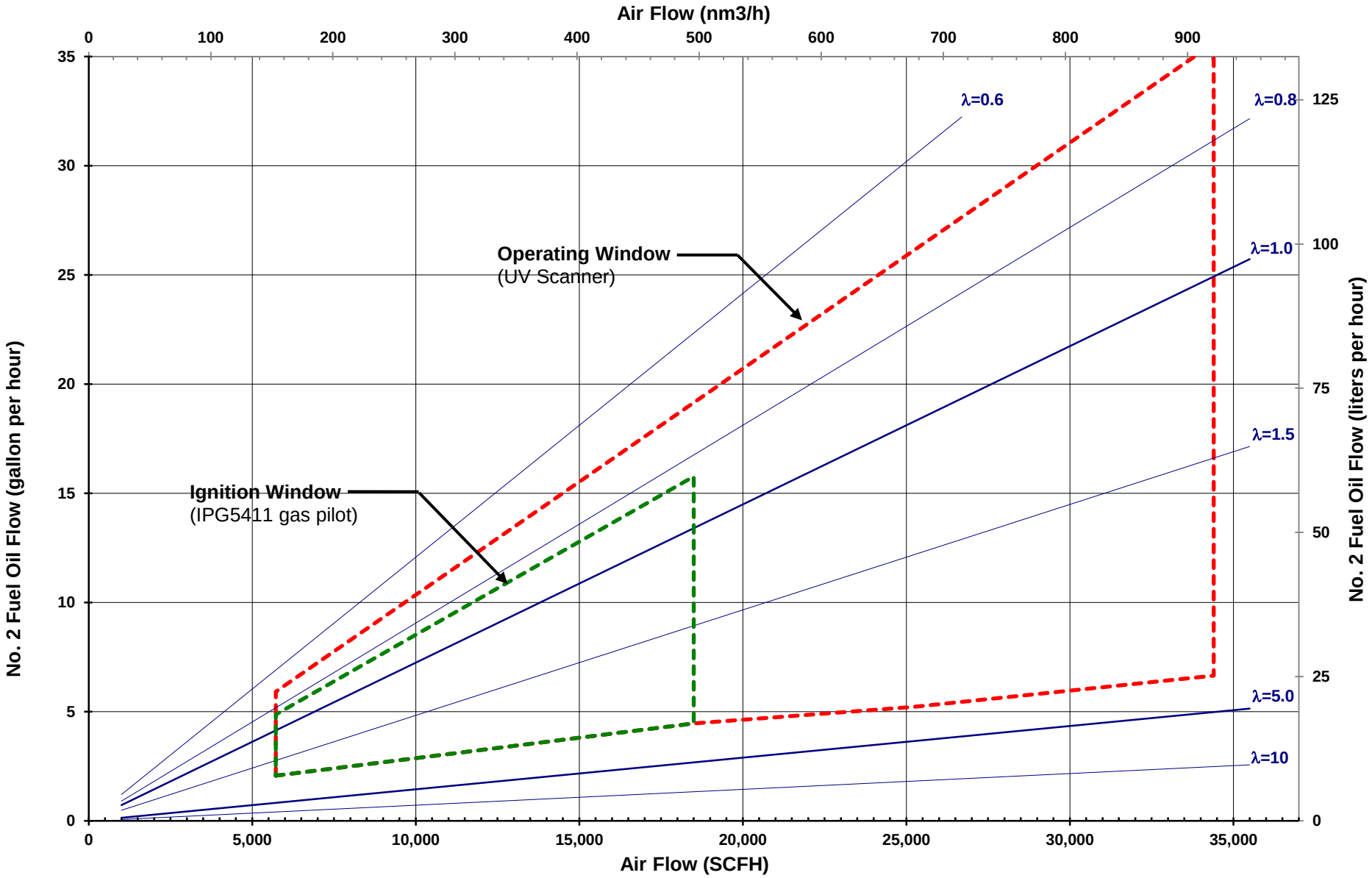
HBC 1104/2104/3104 Operating and Ignition Window

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



HBC 1104/2104/3104 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air



Burner Capacity Information, HBC 1106/2106

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**1,000,000**	**3,480,000**	**4,670,000**	**5,610,000**	**6,480,000**
	(kW)	**260**	**920**	**1,240**	**1,480**	**1,710**
Secondary Air Capacity	(scfh)	6,750	32,500	44,825	54,500	63,500
	(nm^3/hr)	181	871	1,201	1,460	1,701
Secondary 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
Primary Air Capacity	(scfh)	3,600	3,600	3,600	3,600	3,600
	(nm^3/hr)	96	96	96	96	96
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.0	1.7	3.6	5.4	7.3
	(mbar)	0.1	4.2	9.0	13.4	18.2
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)	12	24	28	28	30
	(mm)	300	610	710	710	760
Maximum Operating Excess	(Air)	200%	350%	350%	350%	350%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3106

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**750,000**	**2,290,000**	**3,030,000**	**3,600,000**	**4,140,000**
	(kW)	**200**	**610**	**800**	**950**	**1,100**
Secondary Air Capacity	(scfh)	4,179	20,120	27,750	33,740	39,312
	(nm^3/hr)	112	539	743	904	1,053
Secondary 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
Primary Air Capacity	(scfh)	3,600	3,600	3,600	3,600	3,600
	(nm^3/hr)	96	96	96	96	96
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.0	1.3	2.7	4.1	5.5
	(mbar)	0.1	3.2	6.8	10.2	13.8
Flame Length (at 10% Excess Air)	(in)	27	54	63	68	72
	(mm)	690	1370	1600	1710	1830
Flame Diameter (at 10% Excess Air	(in)	11	22	25	25	27
	(mm)	270	550	640	640	690
Maximum Operating Excess	(Air)	160%	280%	280%	280%	280%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1106/2106

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**1,080,000**	**3,230,000**	**4,250,000**	**5,060,000**	**5,810,000**
	(kW)	**290**	**850**	**1,120**	**1,340**	**1,540**
Secondary Air Capacity	(scfh)	6,750	32,500	44,825	54,500	63,500
	(nm^3/hr)	181	871	1,201	1,460	1,701
Secondary 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
Primary Air Capacity	(scfh)	6,200	6,200	6,200	6,200	6,200
	(nm^3/hr)	166	166	166	166	166
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	7.8	23	31	37	42
	(lph)	30	88	117	139	159
Flame Length (at 20% Excess Air)	(in)	30	72	84	84	90
	(mm)	760	1830	2130	2130	2290
Flame Diameter (at 20% Excess Air	(in)	12	16	24	24	28
	(mm)	300	410	610	610	710
Maximum Operating Excess	(Air)	100%	350%	400%	500%	600%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3106

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**860,000**	**2,190,000**	**2,830,000**	**3,330,000**	**3,790,000**
	(kW)	**230**	**580**	**750**	**880**	**1,000**
Secondary Air Capacity	(scfh)	4,179	20,120	27,750	33,740	39,312
	(nm^3/hr)	112	539	743	904	1,053
Secondary 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
Primary Air Capacity	(scfh)	6,200	6,200	6,200	6,200	6,200
	(nm^3/hr)	166	166	166	166	166
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	6.3	16	21	24	27
	(lph)	24	60	78	91	104
Flame Length(at 20% Excess Air)	(in)	23	54	63	63	68
	(mm)	570	1370	1600	1600	1710
Flame Diameter(at 20% Excess Air)	(in)	11	14	22	22	25
	(mm)	270	370	550	550	640
Maximum Operating Excess	(Air)	80%	280%	320%	400%	480%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1106/2106

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

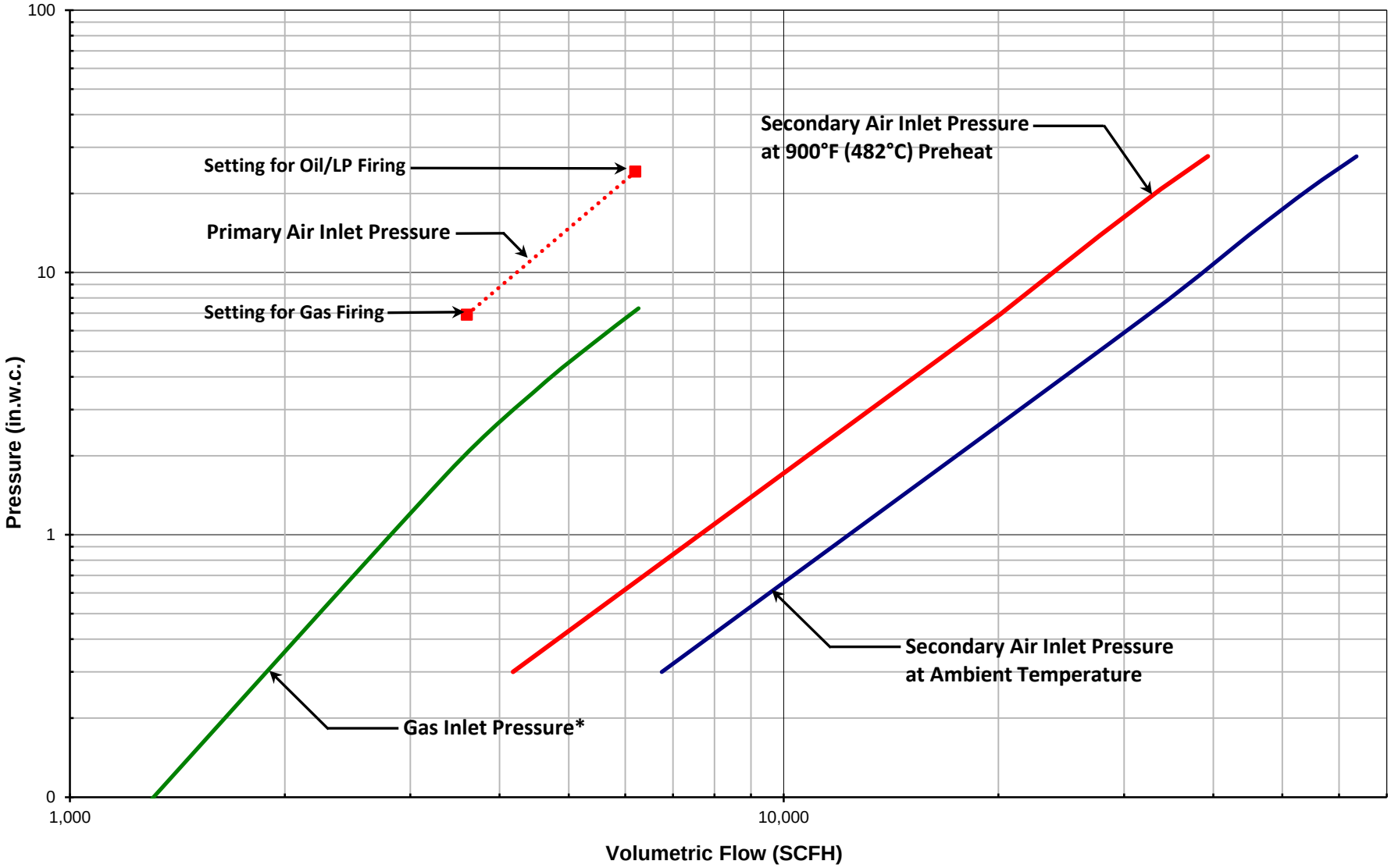
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**1,310,000**	**3,510,000**	**4,570,000**	**5,400,000**	**6,170,000**
	(kW)	**350**	**930**	**1,210**	**1,430**	**1,630**
Secondary Air Capacity	(scfh)	6,750	32,500	44,825	54,500	63,500
	(nm^3/hr)	181	871	1,201	1,460	1,701
Secondary 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
Primary Air Capacity	(scfh)	8,000	8,000	8,000	8,000	8,000
	(nm^3/hr)	214	214	214	214	214
Primary Air Inlet Pressure	(in.w.c.)	4.0	4.0	4.0	4.0	4.0
	(mbar)	10.0	10.0	10.0	10.0	10.0
Atomizing Air Capacity	(scfh)	620	665	700	750	775
	(nm^3/hr)	17	18	19	20	21
Atomizing Air Inlet Pressure	(psig)	23	37	42	48	52
	(bar)	1.6	2.6	2.9	3.3	3.6
Fuel Oil Flow	(gph)	8.7	23	30	36	41
	(lph)	33	87	114	136	155
Fuel Oil Inlet Pressure	(psig)	25	48	46	51	55
	(bar)	1.7	3.3	3.2	3.5	3.8
Flame Length(at 20% Excess Air)	(in)	36	60	72	84	84
	(mm)	910	1520	1830	2130	2130
Flame Diameter(at 20% Excess Air)	(in)	12	16	16	24	24
	(mm)	300	410	410	610	610
Maximum Operating Excess	(Air)	50%	100%	125%	150%	200%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5411 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1106/2106/3106 Pressure Curves

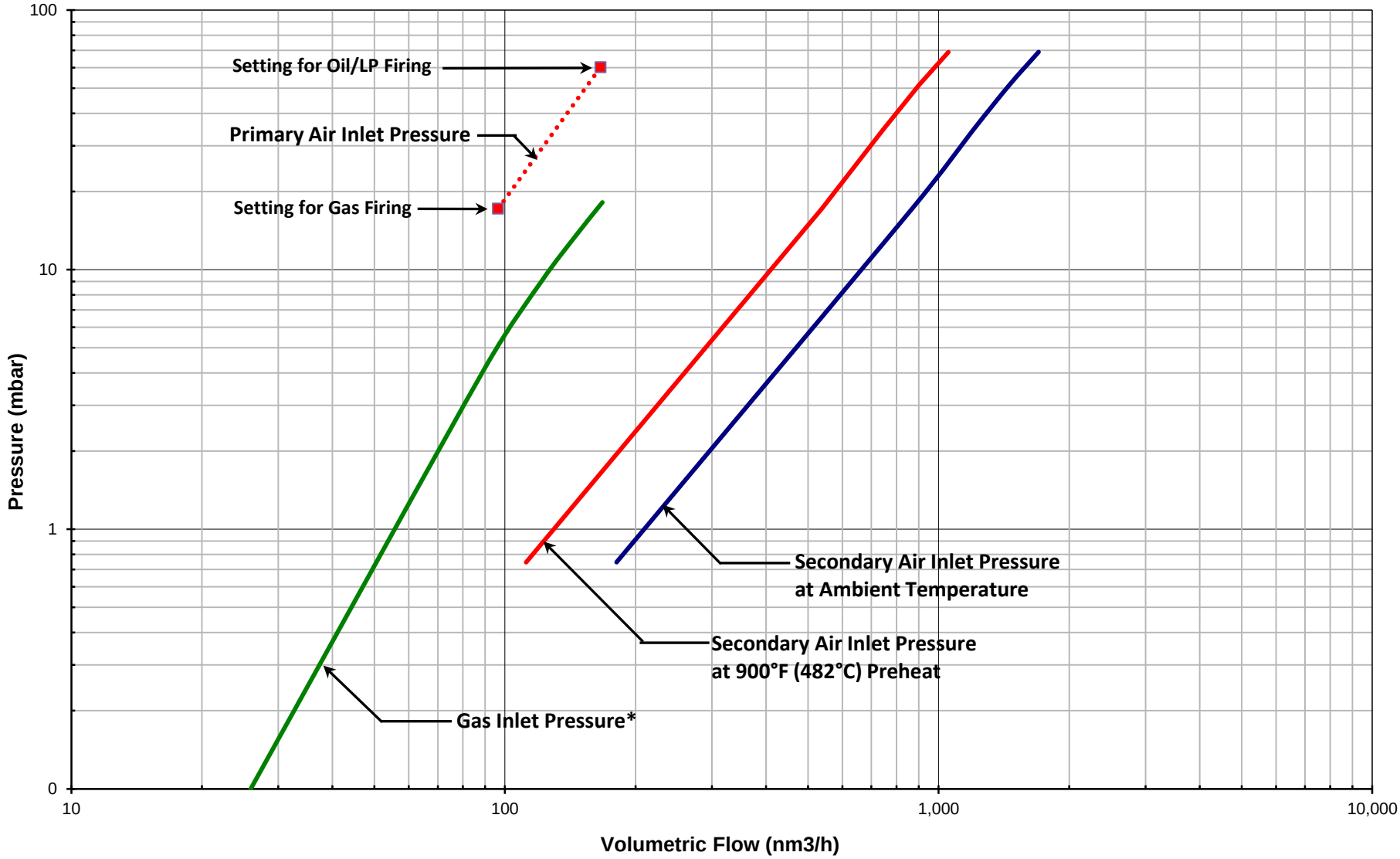
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

HBC 1106/2106/3106 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 HBC burner is not suitable for fuel flow measurement and is given for component sizing and reference onl

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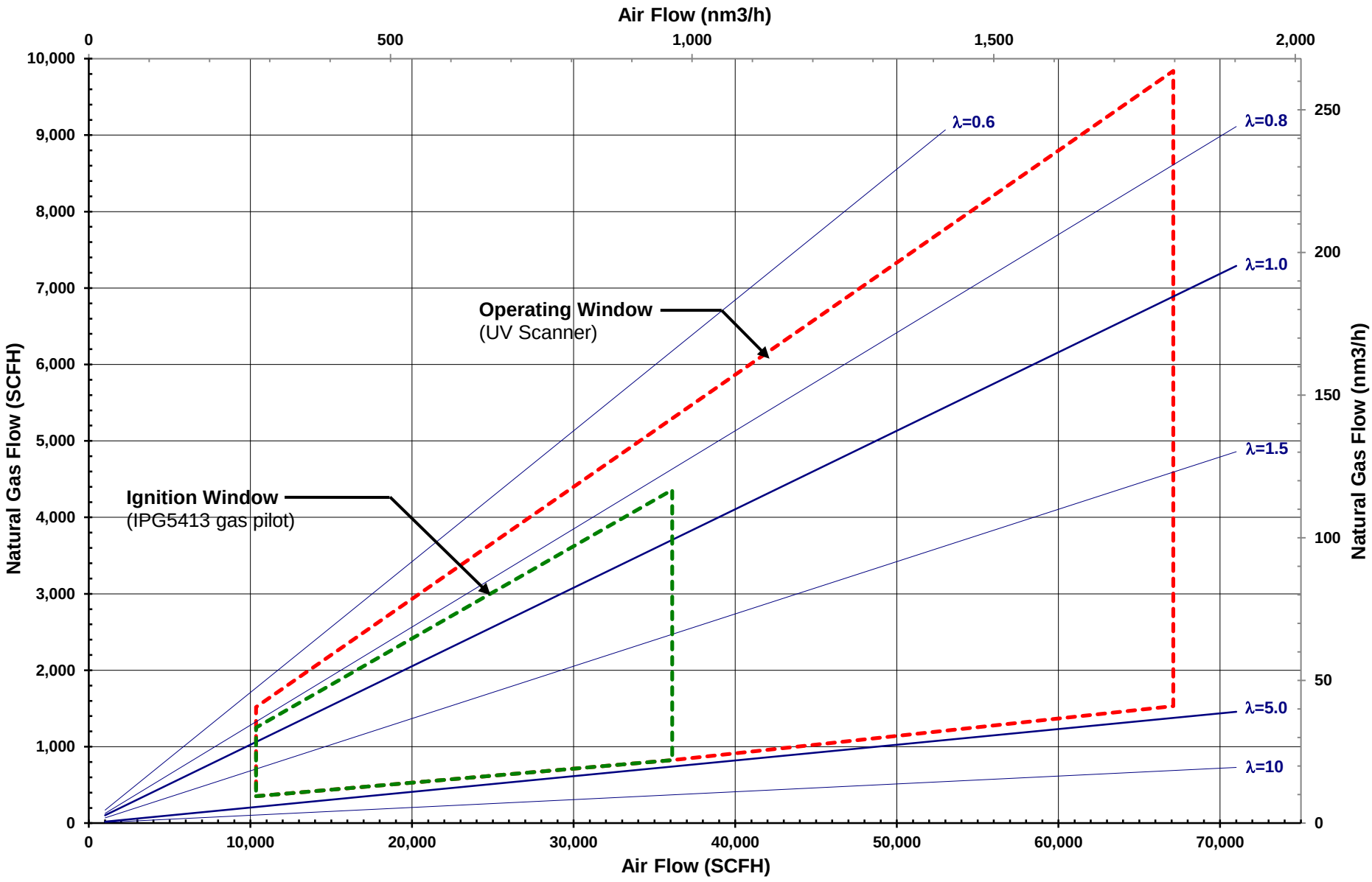
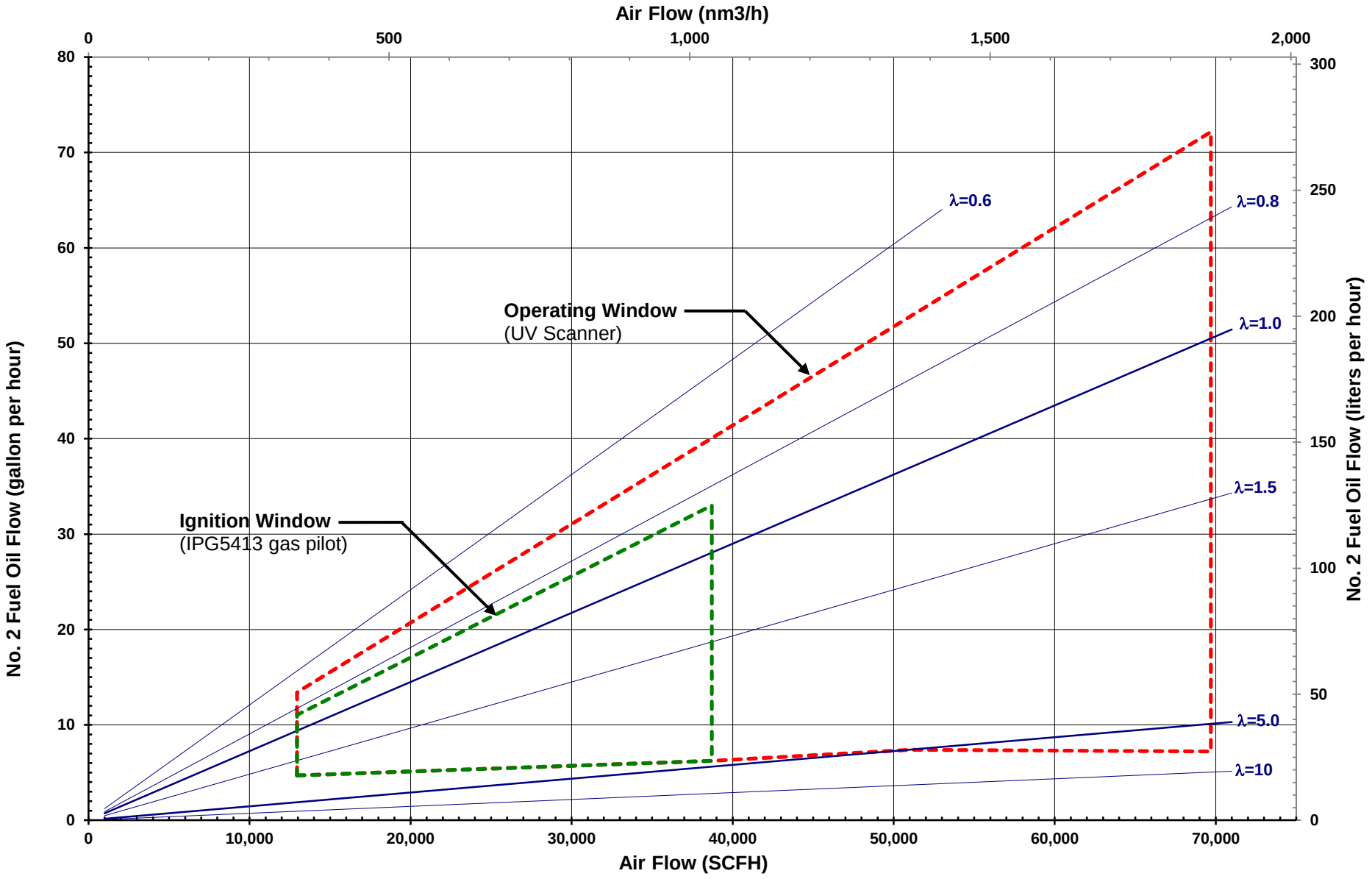
HBC 1106/2106/3106 Operating and Ignition Window

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



HBC 1106/2106/3106 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air



Burner Capacity Information, HBC 1108/2108

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**1,740,000**	**6,520,000**	**9,040,000**	**11,020,000**	**12,550,000**
	(kW)	**460**	**1,720**	**2,390**	**2,910**	**3,320**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	5,500	5,500	5,500	5,500	5,500
	(nm^3/hr)	147	147	147	147	147
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
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)	350%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3108

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**1,280,000**	**4,240,000**	**5,800,000**	**7,020,000**	**7,970,000**
	(kW)	**340**	**1,120**	**1,530**	**1,860**	**2,110**
Secondary Air Capacity	(scfh)	7,769	38,429	54,572	67,263	77,075
	(nm^3/hr)	208	1,029	1,462	1,802	2,065
Secondary 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
Primary Air Capacity	(scfh)	5,500	5,500	5,500	5,500	5,500
	(nm^3/hr)	147	147	147	147	147
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	2.4	4.9	7.1	9.3
	(mbar)	0.2	6.0	12.1	17.6	23.0
Flame Length (at 10% Excess Air)	(in)	45	63	72	81	90
	(mm)	1140	1600	1830	2060	2290
Flame Diameter (at 10% Excess Air	(in)	22	27	27	32	32
	(mm)	550	690	690	820	820
Maximum Operating Excess	(Air)	280%	320%	320%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1108/2108

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**1,960,000**	**6,090,000**	**8,260,000**	**9,970,000**	**11,290,000**
	(kW)	**520**	**1,610**	**2,180**	**2,640**	**2,990**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	11,000	11,000	11,000	11,000	11,000
	(nm^3/hr)	295	295	295	295	295
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	14	44.1	59.9	72.3	81.8
	(lph)	54	109.8	149.0	179.8	203.6
Flame Length (at 20% Excess Air)	(in)	66	90	102	114	120
	(mm)	1680	2290	2590	2900	3050
Flame Diameter (at 20% Excess Air	(in)	24	30	30	36	36
	(mm)	610	760	760	910	910
Maximum Operating Excess	(Air)	400%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3108

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**1,560,000**	**4,120,000**	**5,460,000**	**6,520,000**	**7,340,000**
	(kW)	**410**	**1,090**	**1,440**	**1,720**	**1,940**
Secondary Air Capacity	(scfh)	7,769	38,429	54,572	67,263	77,075
	(nm^3/hr)	208	1,029	1,462	1,802	2,065
Secondary 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
Primary Air Capacity	(scfh)	11,000	11,000	11,000	11,000	11,000
	(nm^3/hr)	295	295	295	295	295
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	14	44.1	59.9	72.3	81.8
	(lph)	54	109.8	149.0	179.8	203.6
Flame Length(at 20% Excess Air)	(in)	50	68	77	86	90
	(mm)	1260	1710	1940	2170	2290
Flame Diameter(at 20% Excess Air)	(in)	22	27	27	32	32
	(mm)	550	690	690	820	820
Maximum Operating Excess	(Air)	320%	320%	320%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1108/2108

LIQUID PROPANE, AMBIENT COMBUSTION AIR OPERATION, LIQUID PROPANE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**2,110,000**	**6,560,000**	**8,890,000**	**10,730,000**	**12,160,000**
	(kW)	**560**	**1,740**	**2,350**	**2,840**	**3,220**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	11,000	11,000	11,000	11,000	11,000
	(nm^3/hr)	295	295	295	295	295
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Liquid Propane Flow	(gph)	23	72	97	117	133
	(lph)	87.4	178.2	241.8	291.9	330.5
Liquid Propane Inlet Pressure	(psig)	2	15	28	41	53
	(bar)	0.1	1.1	1.9	2.8	3.6
Flame Length (at 20% Excess Air)	(in)	60	84	96	108	120
	(mm)	1520	2130	2440	2740	3050
Flame Diameter (at 20% Excess Air)	(in)	24	30	30	36	36
	(mm)	610	760	760	910	910
Maximum Operating Excess	(Air)	350%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

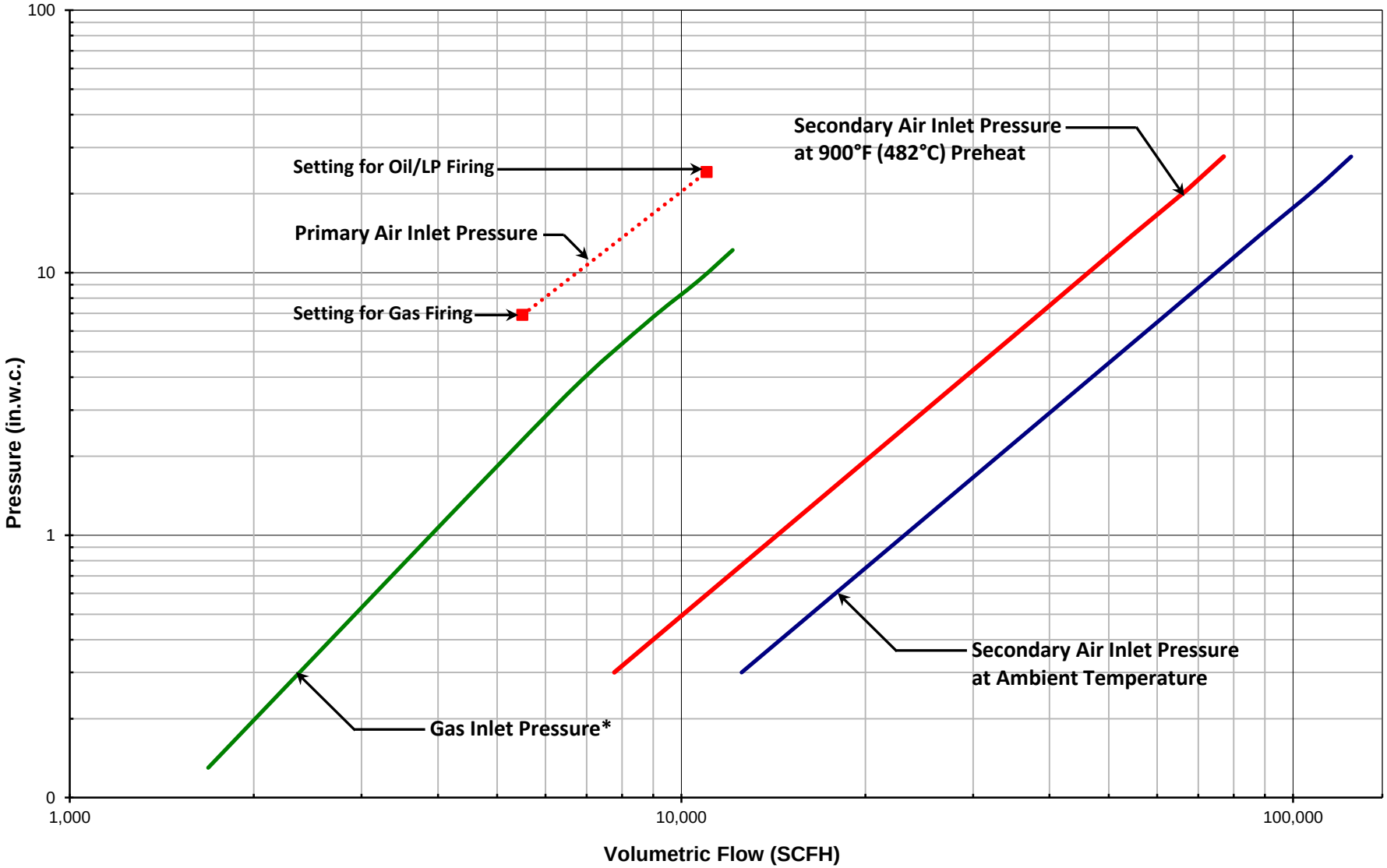
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**1,750,000**	**6,010,000**	**8,250,000**	**10,010,000**	**11,370,000**
	(kW)	**460**	**1,590**	**2,180**	**2,650**	**3,010**
Secondary Air Capacity	(scfh)	12,550	62,075	88,150	108,650	124,500
	(nm^3/hr)	336	1,663	2,361	2,911	3,335
Secondary 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
Primary Air Capacity	(scfh)	7,500	7,500	7,500	7,500	7,500
	(nm^3/hr)	201	201	201	201	201
Primary Air Inlet Pressure	(in.w.c.)	3.0	3.0	3.0	3.0	3.0
	(mbar)	7.5	7.5	7.5	7.5	7.5
Atomizing Air Capacity	(scfh)	450	815	1,060	1,142	1,200
	(nm^3/hr)	12	22	28	31	32
Atomizing Air Inlet Pressure	(psig)	15	36	46	58	70
	(bar)	1.0	2.5	3.2	4.0	4.8
Fuel Oil Flow	(gph))	12	40	60	70	80
	(lph)	44	151	227	265	303
Fuel Oil Inlet Pressure	(psig)	16	38	48	60	72
	(bar)	1.1	2.6	3.3	4.1	5.0
Flame Length (at 20% Excess Air)	(in)	60	84	108	120	132
	(mm)	1520	2130	2740	3050	3350
Flame Diameter (at 20% Excess Air)	(in)	18	18	24	24	30
	(mm)	460	460	610	610	760
Maximum Operating Excess	(Air)	150%	200%	200%	200%	200%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on 1) Liquid Propane with HHV of 91,500 BTU/gal (Standard) / LHV of 6.5 kWh/liter (Metric), 0.51 S.G.,and a stoichiometric ratio of 850:1 at 20% excess air, or 2) No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1108/2108/3108 Pressure Curves

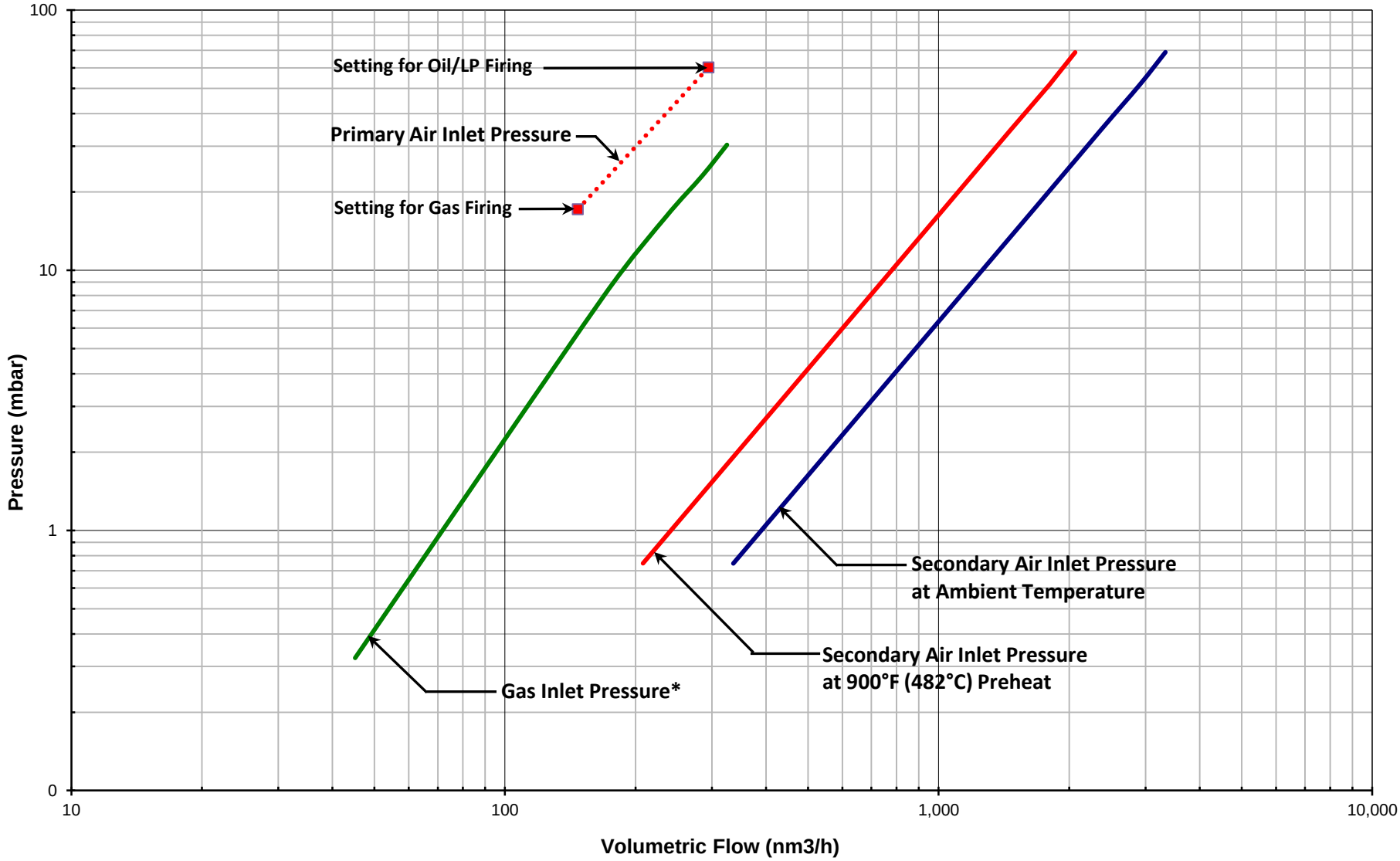
Natural Gas 1034 BTU/ft^3 (HHV Standard) / 10.21 kWh/nm^3 (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

HBC 1108/2108/3108 Pressure Curves

Natural Gas 1034 BTU/ft^3 (HHV Standard) / 10.21 kWh/nm^3 (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

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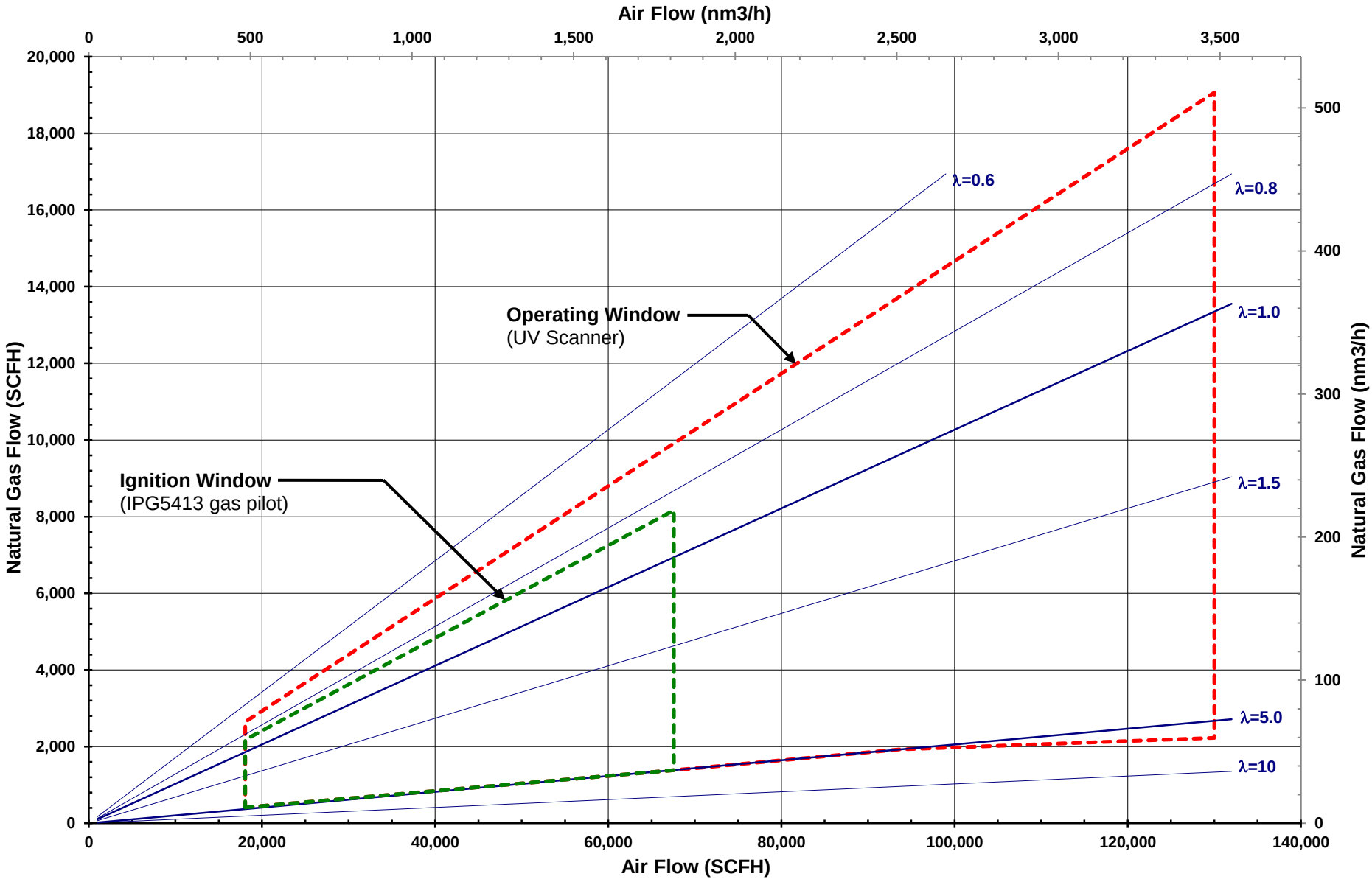
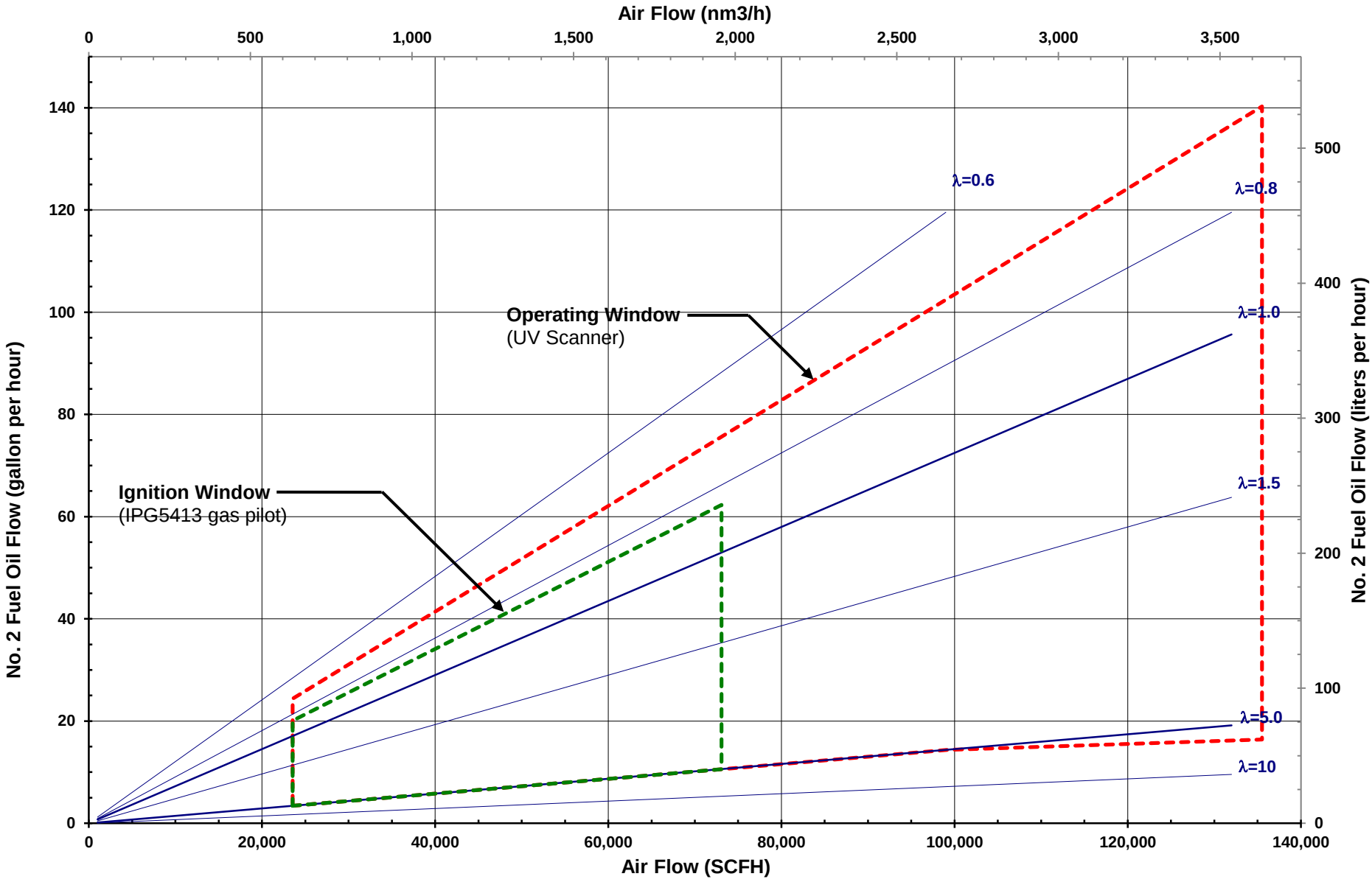
HBC 1108/2108/3108 Operating and Ignition Window

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



HBC 1108/2108/3108 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air



Burner Capacity Information, HBC 1110/2110

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**2,750,000**	**9,990,000**	**13,750,000**	**16,840,000**	**19,640,000**
	(kW)	**730**	**2,640**	**3,640**	**4,450**	**5,190**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	5,500	5,500	5,500	5,500	5,500
	(nm^3/hr)	147	147	147	147	147
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.2	4.3	8.3	10.3	13.5
	(mbar)	0.5	10.7	20.7	25.6	33.6
Flame Length (at 10% Excess Air)	(in)	60	96	120	132	144
	(mm)	1520	2440	3050	3350	3660
Flame Diameter (at 10% Excess Air	(in)	36	42	48	54	60
	(mm)	910	1070	1220	1370	1520
Maximum Operating Excess	(Air)	300%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3110

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**1,900,000**	**6,390,000**	**8,720,000**	**10,630,000**	**12,360,000**
	(kW)	**500**	**1,690**	**2,310**	**2,810**	**3,270**
Secondary Air Capacity	(scfh)	14,239	60,670	84,814	104,625	122,578
	(nm^3/hr)	381	1,625	2,272	2,803	3,284
Secondary 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
Primary Air Capacity	(scfh)	5,500	5,500	5,500	5,500	5,500
	(nm^3/hr)	147	147	147	147	147
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.2	3.3	6.3	7.8	10.2
	(mbar)	0.4	8.1	15.7	19.4	25.5
Flame Length (at 10% Excess Air)	(in)	45	72	90	99	108
	(mm)	1140	1830	2290	2510	2740
Flame Diameter (at 10% Excess Air	(in)	32	38	43	49	54
	(mm)	820	960	1100	1230	1370
Maximum Operating Excess	(Air)	240%	320%	320%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1110/2110

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**2,830,000**	**9,080,000**	**12,330,000**	**15,000,000**	**17,420,000**
	(kW)	**750**	**2,400**	**3,260**	**3,970**	**4,610**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	11,000	11,000	11,000	11,000	11,000
	(nm^3/hr)	295	295	295	295	295
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	21	66	89	109	126
	(lph)	78	249	338	411	478
Flame Length (at 20% Excess Air)	(in)	84	108	120	132	144
	(mm)	2130	2740	3050	3350	3660
Flame Diameter (at 20% Excess Air	(in)	24	36	36	42	48
	(mm)	610	910	910	1070	1220
Maximum Operating Excess	(Air)	500%	750%	1000%	1000%	1000%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3110

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**2,100,000**	**5,970,000**	**7,980,000**	**9,640,000**	**11,130,000**
	(kW)	**560**	**1,580**	**2,110**	**2,550**	**2,940**
Secondary Air Capacity	(scfh)	14,239	60,670	84,814	104,625	122,578
	(nm^3/hr)	381	1,625	2,272	2,803	3,284
Secondary 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
Primary Air Capacity	(scfh)	11,000	11,000	11,000	11,000	11,000
	(nm^3/hr)	295	295	295	295	295
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	15	43	58	70	81
	(lph)	58	164	219	264	305
Flame Length(at 20% Excess Air)	(in)	63	81	90	99	108
	(mm)	1600	2060	2290	2510	2740
Flame Diameter(at 20% Excess Air)	(in)	22	32	32	38	43
	(mm)	550	820	820	960	1100
Maximum Operating Excess	(Air)	400%	600%	800%	800%	800%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1110/2110

LIQUID PROPANE, AMBIENT COMBUSTION AIR OPERATION, LIQUID PROPANE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**3,050,000**	**9,780,000**	**13,280,000**	**16,150,000**	**18,750,000**
	(kW)	**810**	**2,590**	**3,510**	**4,270**	**4,960**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	11,000	11,000	11,000	11,000	11,000
	(nm^3/hr)	295	295	295	295	295
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Liquid Propane Flow	(gph)	33	107	145	176	205
	(lph)	126	404	549	668	776
Liquid Propane Inlet Pressure	(psig)	1	15	28	41	56
	(bar)	0.1	1.0	1.9	2.8	3.8
Flame Length (at 20% Excess Air)	(in)	84	108	120	132	144
	(mm)	2130	2740	3050	3350	3660
Flame Diameter (at 20% Excess Air)	(in)	24	36	36	48	48
	(mm)	610	910	910	1220	1220
Maximum Operating Excess	(Air)	300%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

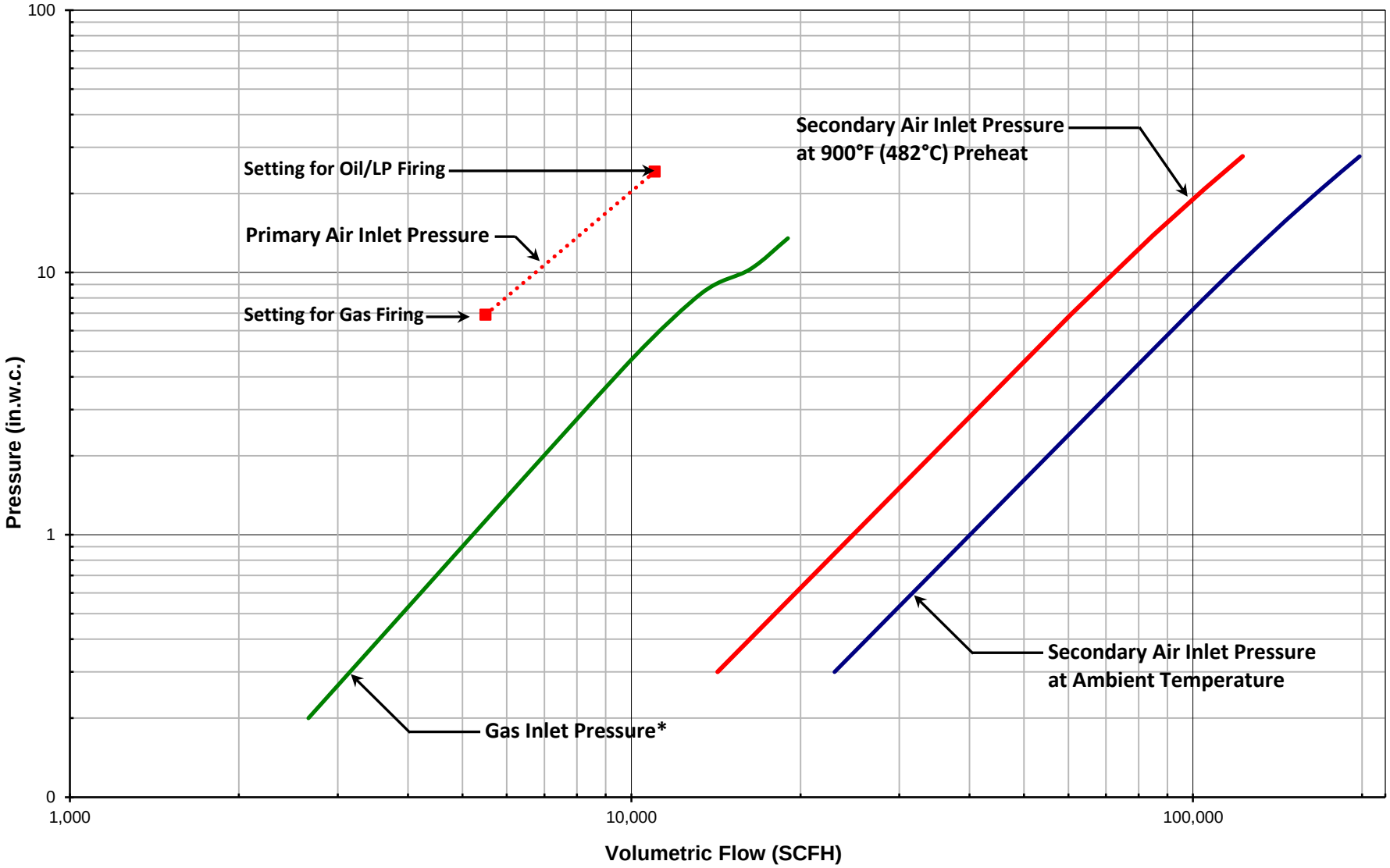
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**2,740,000**	**9,200,000**	**12,530,000**	**15,270,000**	**17,750,000**
	(kW)	**720**	**2,430**	**3,310**	**4,040**	**4,690**
Secondary Air Capacity	(scfh)	23,000	98,000	137,000	169,000	198,000
	(nm^3/hr)	616	2,625	3,670	4,527	5,304
Secondary 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
Primary Air Capacity	(scfh)	8,000	8,000	8,000	8,000	8,000
	(nm^3/hr)	214	214	214	214	214
Primary Air Inlet Pressure	(in.w.c.)	4.0	4.0	4.0	4.0	4.0
	(mbar)	10.0	10.0	10.0	10.0	10.0
Atomizing Air Capacity	(scfh)	1,142	1,795	1,877	1,958	2,000
	(nm^3/hr)	31	48	50	52	54
Atomizing Air Inlet Pressure	(psig)	32	60	72	76	80
	(bar)	2.2	4.1	5.0	5.2	5.5
Fuel Oil Flow	(gph)	18	61	84	102	118
	(lph)	69	231	318	386	447
Fuel Oil Inlet Pressure	(psig)	35	64	80	86	90
	(bar)	2.4	4.4	5.5	5.9	6.2
Flame Length (at 20% Excess Air)	(in)	72	108	120	132	144
	(mm)	1830	2740	3050	3350	3660
Flame Diameter (at 20% Excess Air)	(in)	24	36	36	42	48
	(mm)	610	910	910	1070	1220
Maximum Operating Excess	(Air)	100%	300%	400%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on 1) Liquid Propane with HHV of 91,500 BTU/gal (Standard) / LHV of 6.5 kWh/liter (Metric), 0.51 S.G.,and a stoichiometric ratio of 850:1 at 20% excess air, or 2) No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1110/2110/3110 Pressure Curves

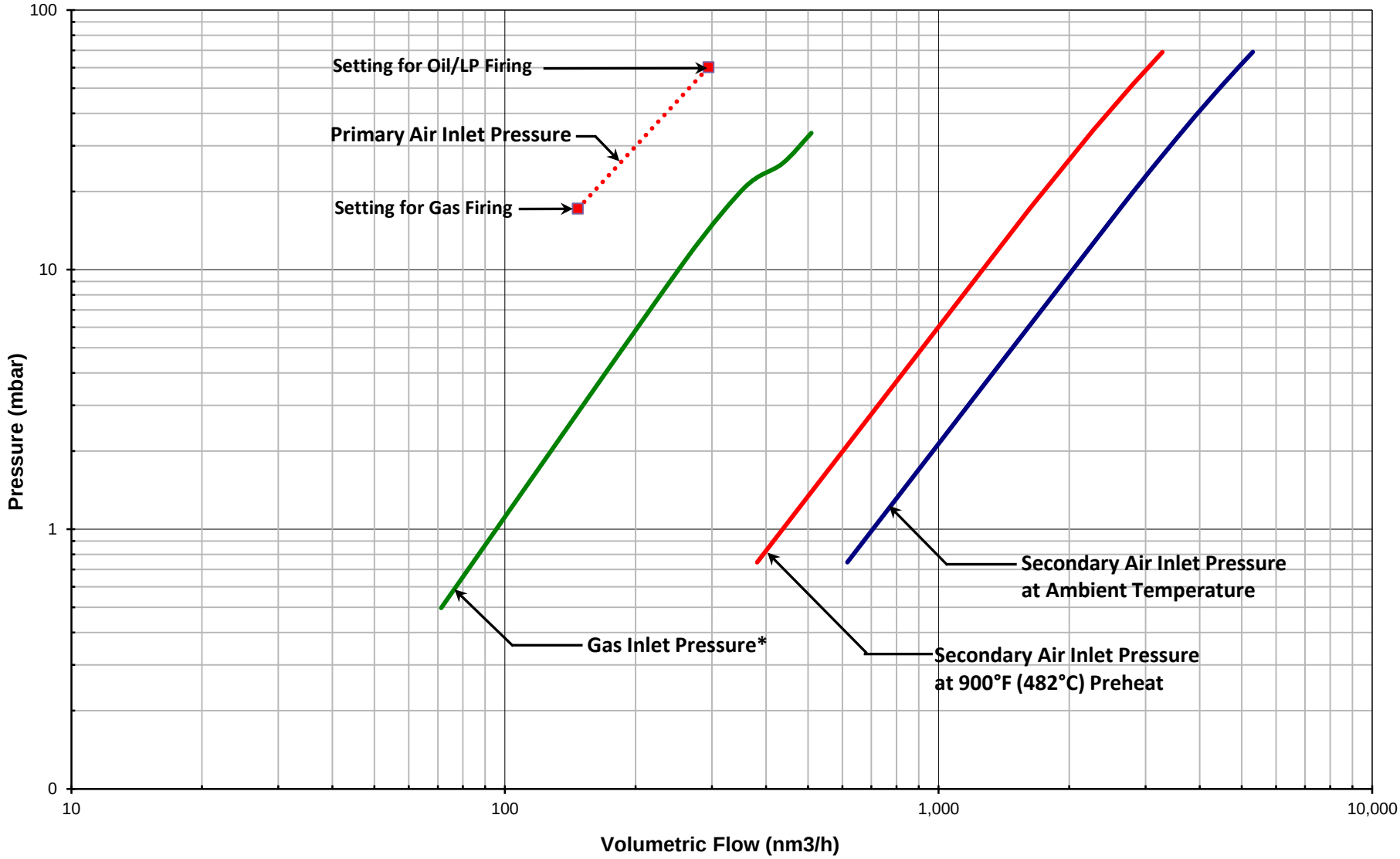
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

HBC 1110/2110/3110 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 HBC burner is not suitable for fuel flow measurement and is given for component sizing and reference onl

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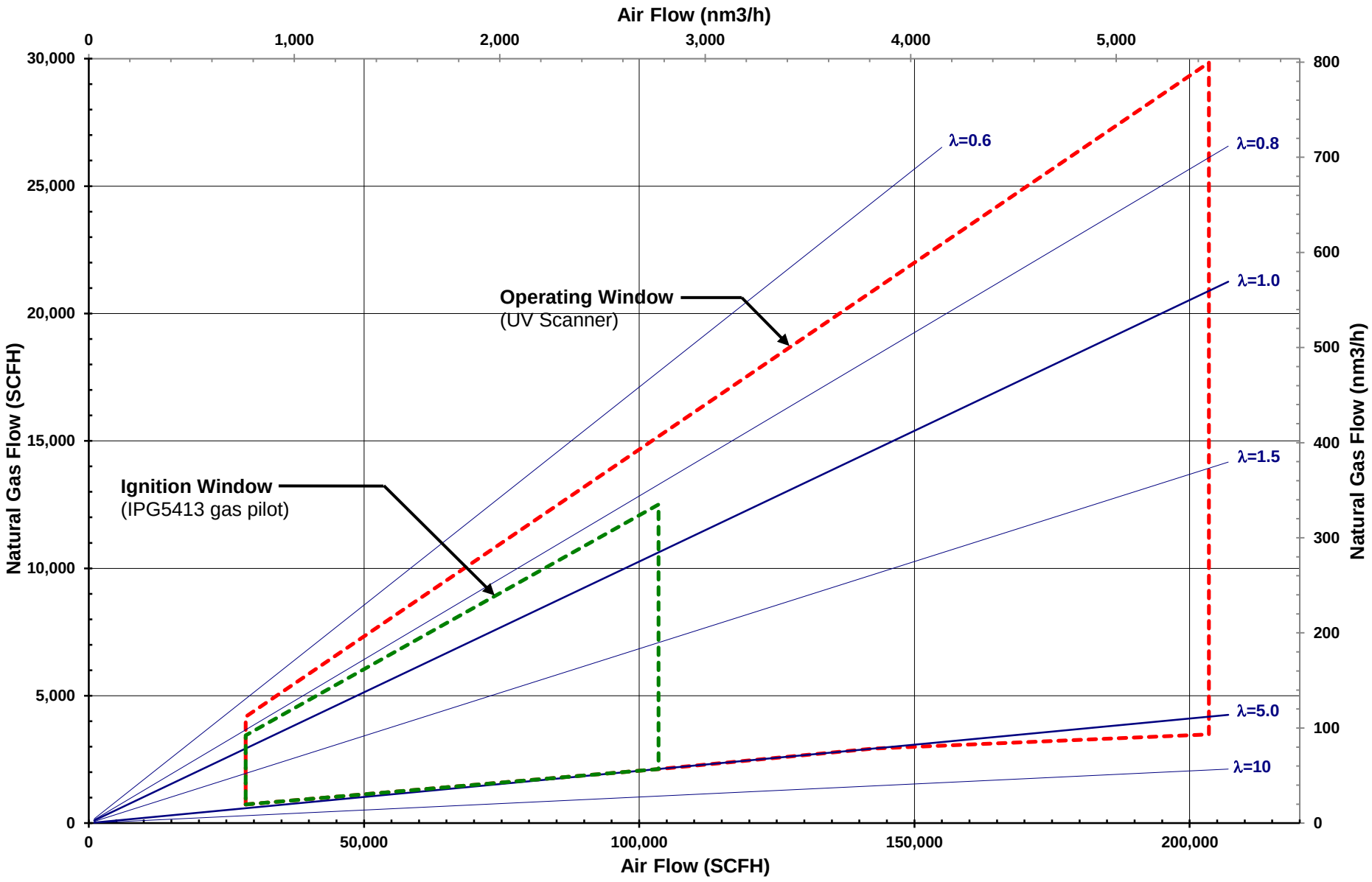
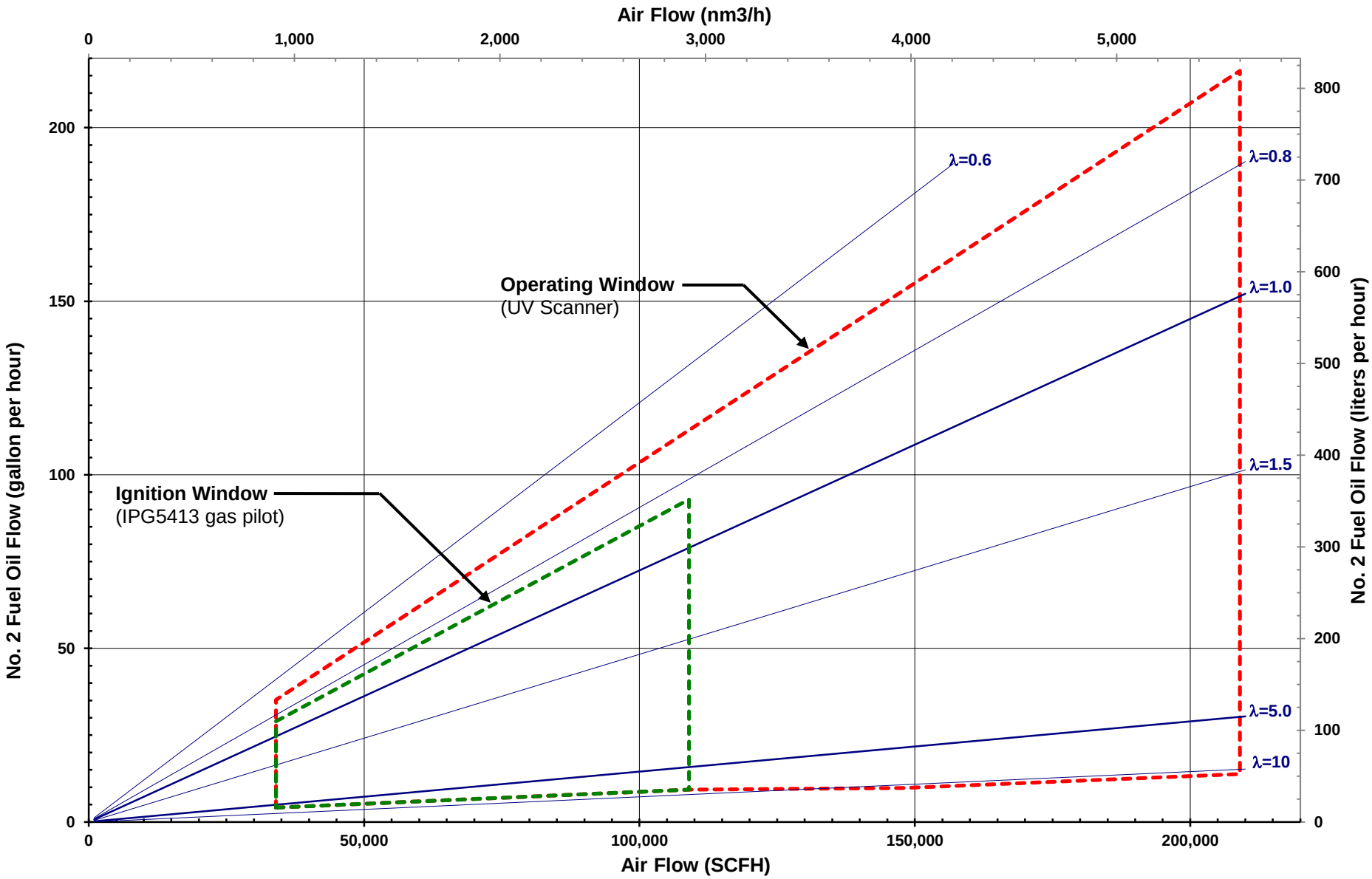
HBC 1110/2110/3110 Operating and Ignition Window

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



HBC 1110/2110/3110 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air



Burner Capacity Information, HBC 1112/2112

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**3,500,000**	**13,640,000**	**18,920,000**	**23,050,000**	**26,420,000**
	(kW)	**930**	**3,610**	**5,000**	**6,100**	**6,990**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	8,800	8,800	8,800	8,800	8,800
	(nm^3/hr)	236	236	236	236	236
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	1.6	3.0	4.5	5.9
	(mbar)	0.2	4.0	7.5	11.1	14.6
Flame Length (at 10% Excess Air)	(in)	60	120	168	174	180
	(mm)	1520	3050	4270	4420	4570
Flame Diameter (at 10% Excess Air	(in)	24	24	36	48	48
	(mm)	610	610	910	1220	1220
Maximum Operating Excess	(Air)	300%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3112

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**2,490,000**	**8,770,000**	**12,040,000**	**14,590,000**	**16,680,000**
	(kW)	**660**	**2,320**	**3,180**	**3,860**	**4,410**
Secondary Air Capacity	(scfh)	17,025	82,028	115,923	142,388	164,056
	(nm^3/hr)	456	2,197	3,105	3,814	4,395
Secondary 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
Primary Air Capacity	(scfh)	8,800	8,800	8,800	8,800	8,800
	(nm^3/hr)	236	236	236	236	236
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	1.2	2.3	3.4	4.4
	(mbar)	0.2	3.0	5.7	8.4	11.0
Flame Length (at 10% Excess Air)	(in)	45	90	126	131	135
	(mm)	1140	2290	3200	3310	3430
Flame Diameter (at 10% Excess Air	(in)	22	22	32	43	43
	(mm)	550	550	820	1100	1100
Maximum Operating Excess	(Air)	240%	320%	320%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1112/2112

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**3,750,000**	**12,500,000**	**17,060,000**	**20,630,000**	**23,540,000**
	(kW)	**990**	**3,310**	**4,510**	**5,460**	**6,230**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	17,500	17,500	17,500	17,500	17,500
	(nm^3/hr)	469	469	469	469	469
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	27	90.6	123.6	149.5	170.6
	(lph)	103	225.4	307.6	371.8	424.4
Flame Length (at 20% Excess Air)	(in)	84	120	132	144	156
	(mm)	2130	3050	3350	3660	3960
Flame Diameter (at 20% Excess Air	(in)	24	36	36	42	48
	(mm)	610	910	910	1070	1220
Maximum Operating Excess	(Air)	500%	750%	1000%	1000%	1000%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3112

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**2,880,000**	**8,290,000**	**11,120,000**	**13,320,000**	**15,130,000**
	(kW)	**760**	**2,190**	**2,940**	**3,520**	**4,000**
Secondary Air Capacity	(scfh)	17,025	82,028	115,923	142,388	164,056
	(nm^3/hr)	456	2,197	3,105	3,814	4,395
Secondary 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
Primary Air Capacity	(scfh)	17,500	17,500	17,500	17,500	17,500
	(nm^3/hr)	469	469	469	469	469
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	27	90.6	123.6	149.5	170.6
	(lph)	103	225.4	307.6	371.8	424.4
Flame Length(at 20% Excess Air)	(in)	63	90	99	108	117
	(mm)	1600	2290	2510	2740	2970
Flame Diameter(at 20% Excess Air)	(in)	22	32	32	38	43
	(mm)	550	820	820	960	1100
Maximum Operating Excess	(Air)	400%	600%	800%	800%	800%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1112/2112

LIQUID PROPANE, AMBIENT COMBUSTION AIR OPERATION, LIQUID PROPANE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**4,040,000**	**13,460,000**	**18,370,000**	**22,200,000**	**25,340,000**
	(kW)	**1,070**	**3,560**	**4,860**	**5,870**	**6,700**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	17,500	17,500	17,500	17,500	17,500
	(nm^3/hr)	469	469	469	469	469
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Liquid Propane Flow	(gph)	44	147	201	243	277
	(lph)	167.0	365.9	499.4	603.7	689.1
Liquid Propane Inlet Pressure	(psig)	3	29	53	78	102
	(bar)	0.2	2.0	3.7	5.4	7.0
Flame Length (at 20% Excess Air)	(in)	84	108	120	132	144
	(mm)	2130	2740	3050	3350	3660
Flame Diameter (at 20% Excess Air)	(in)	24	36	36	48	48
	(mm)	610	910	910	1220	1220
Maximum Operating Excess	(Air)	300%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

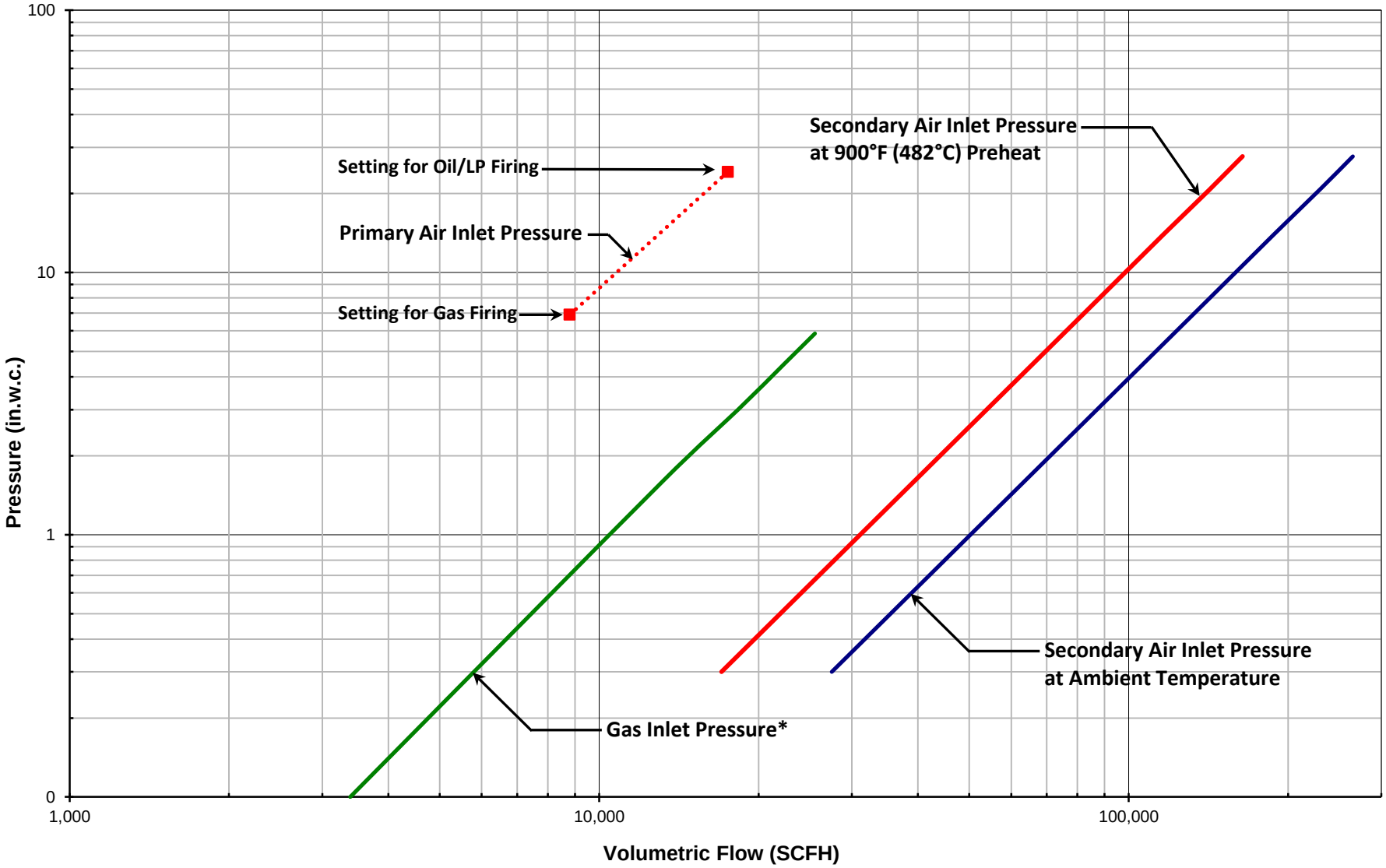
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**3,670,000**	**12,690,000**	**17,370,000**	**21,020,000**	**24,010,000**
	(kW)	**970**	**3,360**	**4,590**	**5,560**	**6,350**
Secondary Air Capacity	(scfh)	27,500	132,500	187,250	230,000	265,000
	(nm^3/hr)	737	3,549	5,016	6,161	7,099
Secondary 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
Primary Air Capacity	(scfh)	14,400	14,400	14,400	14,400	14,400
	(nm^3/hr)	386	386	386	386	386
Primary Air Inlet Pressure	(in.w.c.)	7.0	7.0	7.0	7.0	7.0
	(mbar)	17.4	17.4	17.4	17.4	17.4
Atomizing Air Capacity	(scfh)	1,142	1,795	1,877	1,958	2,000
	(nm^3/hr)	31	48	50	52	54
Atomizing Air Inlet Pressure	(psig)	32	60	72	76	80
	(bar)	2.2	4.1	5.0	5.2	5.5
Fuel Oil Flow	(gph))	24	80	120	140	160
	(lph)	93	303	454	530	606
Fuel Oil Inlet Pressure	(psig)	35	64	80	86	90
	(bar)	2.4	4.4	5.5	5.9	6.2
Flame Length (at 20% Excess Air)	(in)	72	108	120	132	144
	(mm)	1830	2740	3050	3350	3660
Flame Diameter (at 20% Excess Air)	(in)	24	36	36	42	48
	(mm)	610	910	910	1070	1220
Maximum Operating Excess	(Air)	100%	300%	400%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on 1) Liquid Propane with HHV of 91,500 BTU/gal (Standard) / LHV of 6.5 kWh/liter (Metric), 0.51 S.G.,and a stoichiometric ratio of 850:1 at 20% excess air, or 2) No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1112/2112/3112 Pressure Curves

Natural Gas 1034 BTU/ft^3 (HHV Standard) / 10.21 kWh/nm^3 (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

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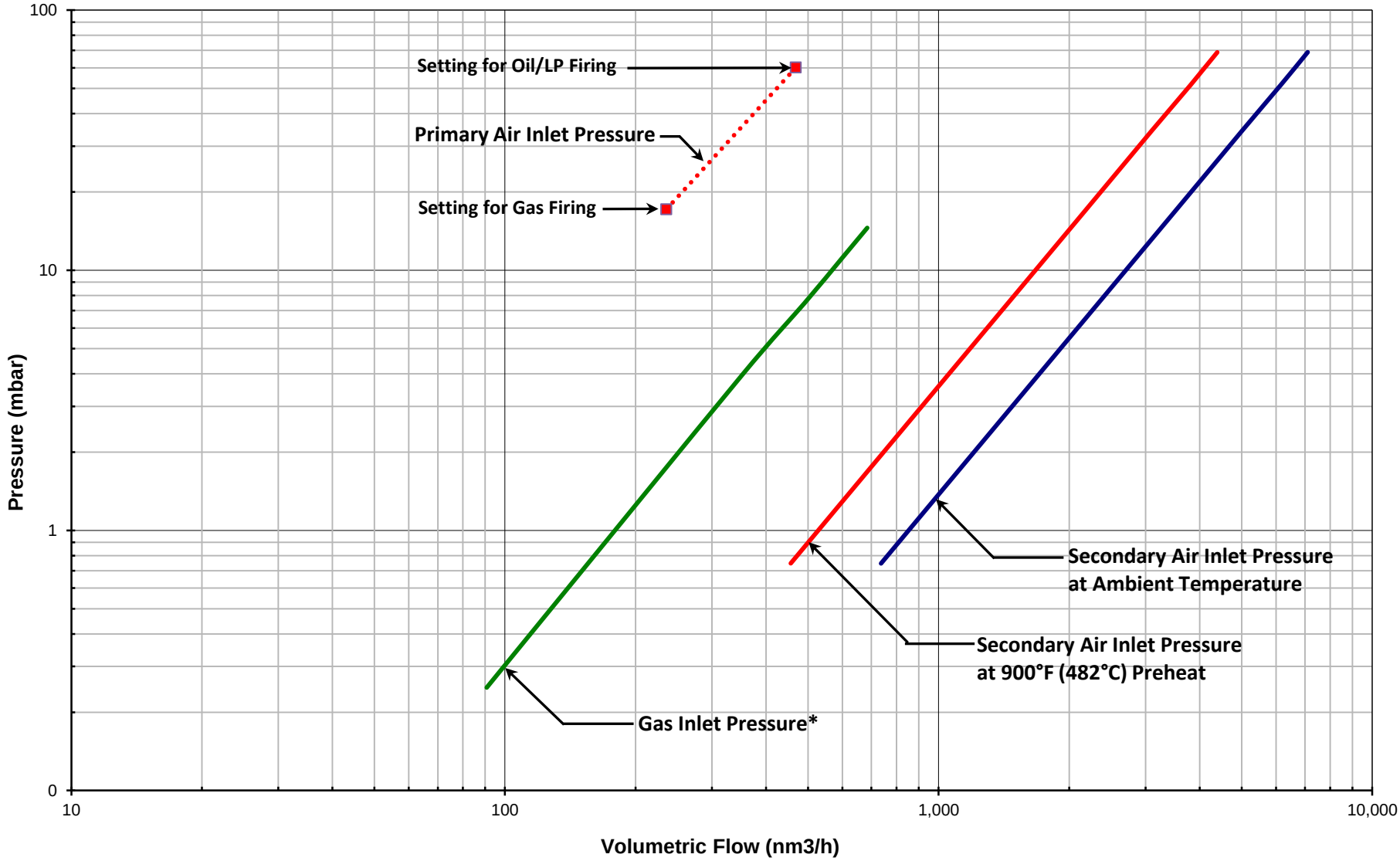
HBC 1112/2112/3112 Pressure Curves

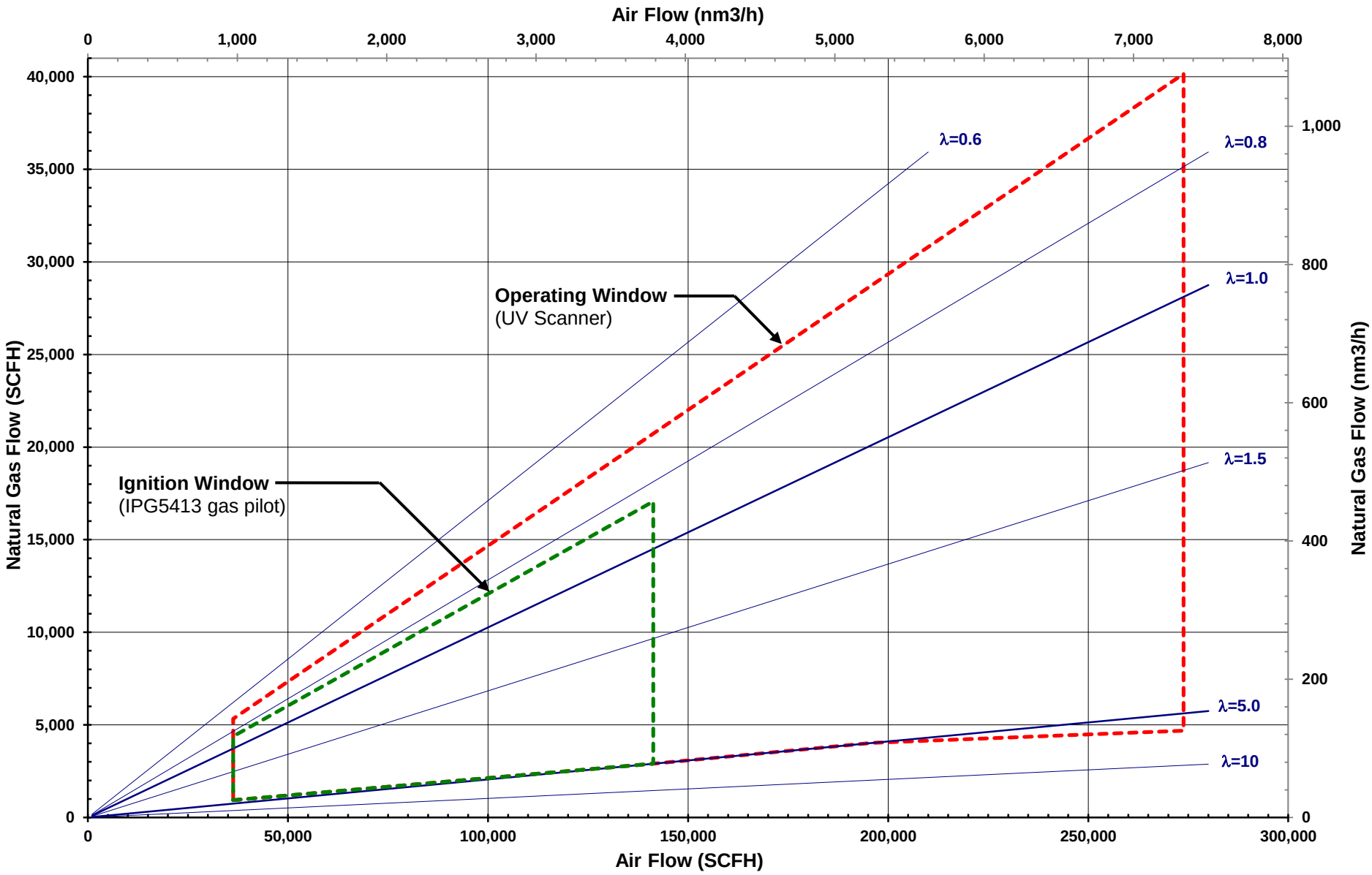
Natural Gas 1034 BTU/ft^3 (HHV Standard) / 10.21 kWh/nm^3 (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

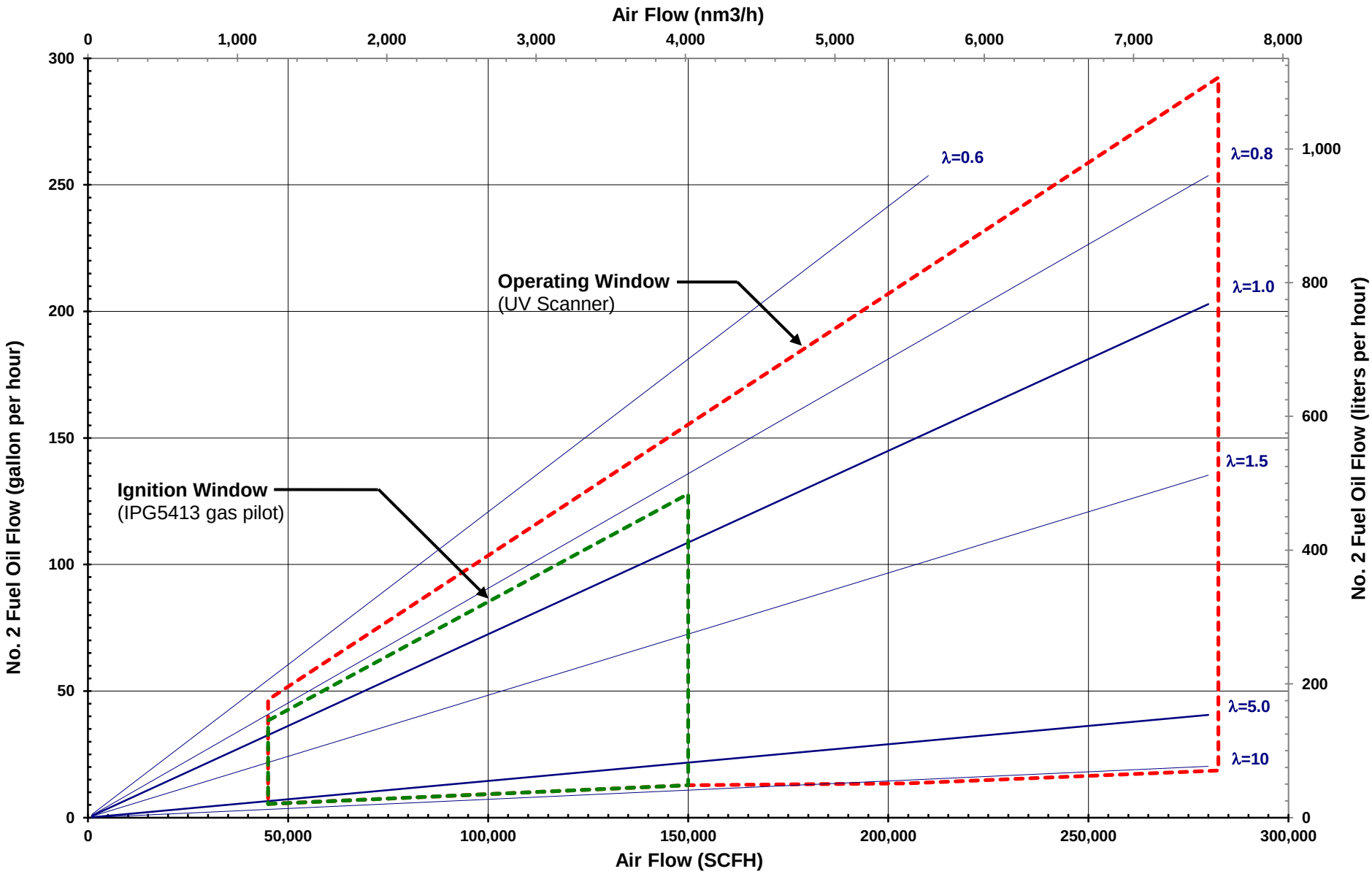
HBC 1112/2112/3112 Operating and Ignition Window

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



HBC 1112/2112/3112 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air



Burner Capacity Information, HBC 1114/2114

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**5,360,000**	**20,600,000**	**28,520,000**	**34,650,000**	**39,810,000**
	(kW)	**1,420**	**5,450**	**7,540**	**9,160**	**10,530**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	15,500	15,500	15,500	15,500	15,500
	(nm^3/hr)	415	415	415	415	415
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.0	0.3	0.6	0.9	1.2
	(mbar)	0.0	0.7	1.5	2.2	3.0
Flame Length (at 10% Excess Air)	(in)	60	144	156	168	180
	(mm)	1520	3660	3960	4270	4570
Flame Diameter (at 10% Excess Air	(in)	24	36	48	54	60
	(mm)	610	910	1220	1370	1520
Maximum Operating Excess	(Air)	100%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3114

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**3,890,000**	**13,330,000**	**18,230,000**	**22,020,000**	**25,220,000**
	(kW)	**1,030**	**3,530**	**4,820**	**5,820**	**6,670**
Secondary Air Capacity	(scfh)	24,763	122,578	173,342	212,654	245,775
	(nm^3/hr)	663	3,284	4,643	5,697	6,584
Secondary 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
Primary Air Capacity	(scfh)	15,500	15,500	15,500	15,500	15,500
	(nm^3/hr)	415	415	415	415	415
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.0	0.2	0.5	0.7	0.9
	(mbar)	0.0	0.6	1.1	1.7	2.3
Flame Length (at 10% Excess Air)	(in)	45	108	117	126	135
	(mm)	1140	2740	2970	3200	3430
Flame Diameter (at 10% Excess Air	(in)	22	32	43	49	54
	(mm)	550	820	1100	1230	1370
Maximum Operating Excess	(Air)	80%	320%	320%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1114/2114

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**5,920,000**	**19,080,000**	**25,920,000**	**31,210,000**	**35,670,000**
	(kW)	**1,570**	**5,050**	**6,860**	**8,260**	**9,430**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	31,000	31,000	31,000	31,000	31,000
	(nm^3/hr)	830	830	830	830	830
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	43	138.3	187.8	226.1	258.5
	(lph)	162	344.1	467.3	562.7	643.0
Flame Length (at 20% Excess Air)	(in)	60	156	168	180	192
	(mm)	1520	3960	4270	4570	4880
Flame Diameter (at 20% Excess Air	(in)	24	48	48	54	60
	(mm)	610	1220	1220	1370	1520
Maximum Operating Excess	(Air)	150%	500%	500%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3114

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**4,650,000**	**12,800,000**	**17,030,000**	**20,300,000**	**23,060,000**
	(kW)	**1,230**	**3,390**	**4,500**	**5,370**	**6,100**
Secondary Air Capacity	(scfh)	24,763	122,578	173,342	212,654	245,775
	(nm^3/hr)	663	3,284	4,643	5,697	6,584
Secondary 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
Primary Air Capacity	(scfh)	31,000	31,000	31,000	31,000	31,000
	(nm^3/hr)	830	830	830	830	830
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	43	138.3	187.8	226.1	258.5
	(lph)	162	344.1	467.3	562.7	643.0
Flame Length(at 20% Excess Air)	(in)	45	117	126	135	144
	(mm)	1140	2970	3200	3430	3660
Flame Diameter(at 20% Excess Air)	(in)	22	43	43	49	54
	(mm)	550	1100	1100	1230	1370
Maximum Operating Excess	(Air)	120%	400%	400%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1114/2114

LIQUID PROPANE, AMBIENT COMBUSTION AIR OPERATION, LIQUID PROPANE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**6,370,000**	**20,540,000**	**27,900,000**	**33,590,000**	**38,390,000**
	(kW)	**1,680**	**5,430**	**7,380**	**8,880**	**10,150**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	31,000	31,000	31,000	31,000	31,000
	(nm^3/hr)	830	830	830	830	830
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Liquid Propane Flow	(gph)	70	225	305	367	420
	(lph)	263.5	558.6	758.6	913.5	1,044.0
Liquid Propane Inlet Pressure	(psig)	3	31	57	83	109
	(bar)	0.2	2.1	4.0	5.7	7.5
Flame Length (at 20% Excess Air)	(in)	60	144	156	168	180
	(mm)	1520	3660	3960	4270	4570
Flame Diameter(at 20% Excess Air)	(in)	24	42	48	54	60
	(mm)	610	1070	1220	1370	1520
Maximum Operating Excess	(Air)	150%	400%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

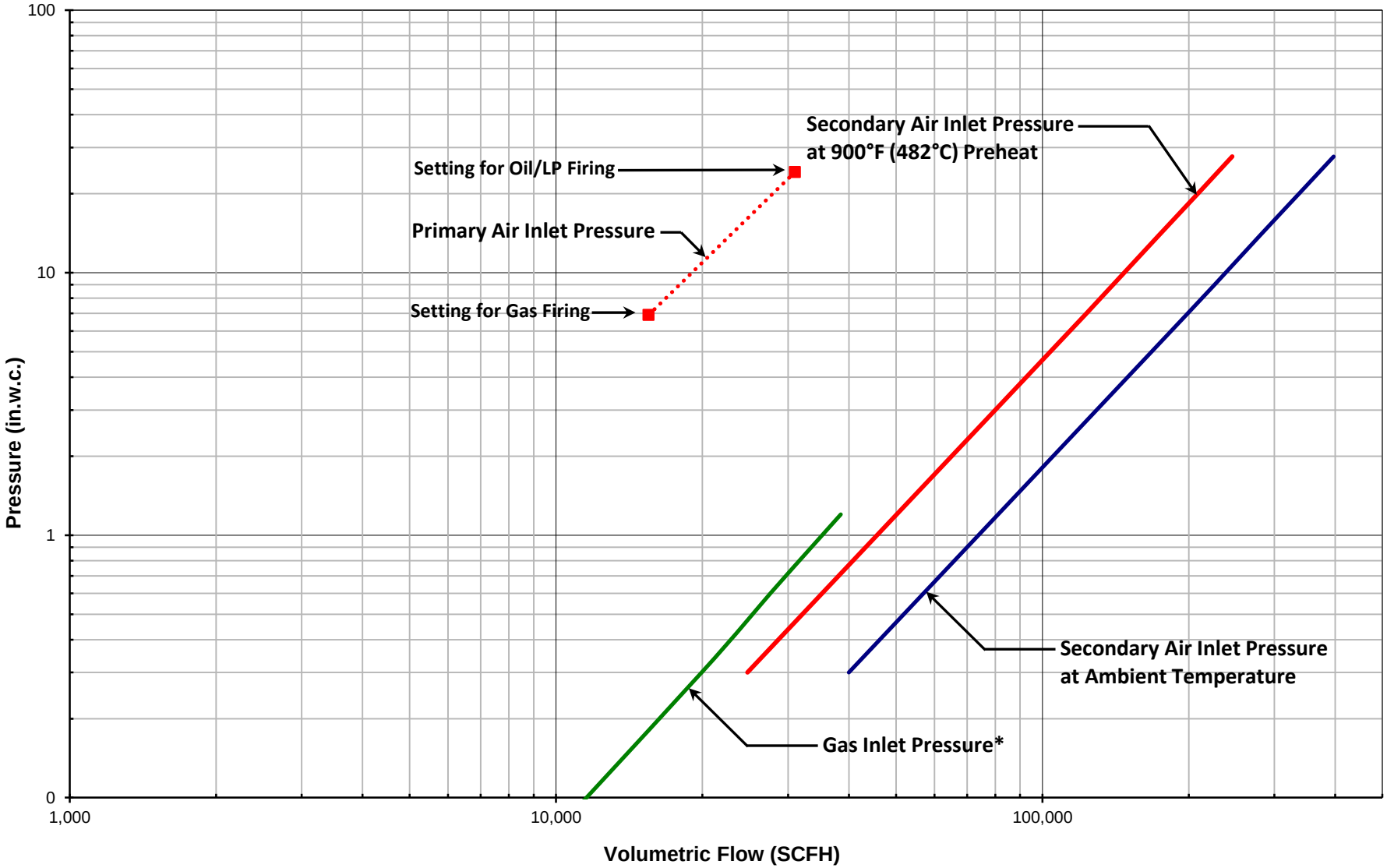
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**5,330,000**	**18,820,000**	**25,830,000**	**31,270,000**	**35,840,000**
	(kW)	**1,410**	**4,980**	**6,830**	**8,270**	**9,480**
Secondary Air Capacity	(scfh)	40,000	198,000	280,000	343,500	397,000
	(nm^3/hr)	1,072	5,304	7,501	9,202	10,635
Secondary 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
Primary Air Capacity	(scfh)	20,000	20,000	20,000	20,000	20,000
	(nm^3/hr)	536	536	536	536	536
Primary Air Inlet Pressure	(in.w.c.)	2.0	2.0	2.0	2.0	2.0
	(mbar)	5.0	5.0	5.0	5.0	5.0
Atomizing Air Capacity	(scfh)	2,475	2,555	2,715	2,955	3,000
	(nm^3/hr)	66	68	73	79	80
Atomizing Air Inlet Pressure	(psig)	18	25	34	40	45
	(bar)	1.2	1.7	2.3	2.8	3.1
Fuel Oil Flow	(gph))	36	130	170	210	240
	(lph)	135	492	643	795	908
Fuel Oil Inlet Pressure	(psig)	19	26	36	42	48
	(bar)	1.3	1.8	2.5	2.9	3.3
Flame Length(at 20% Excess Air)	(in)	72	120	132	144	156
	(mm)	1830	3050	3350	3660	3960
Flame Diameter(at 20% Excess Air)	(in)	24	36	36	42	48
	(mm)	610	910	910	1070	1220
Maximum Operating Excess	(Air)	150%	400%	500%	500%	600%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on 1) Liquid Propane with HHV of 91,500 BTU/gal (Standard) / LHV of 6.5 kWh/liter (Metric), 0.51 S.G.,and a stoichiometric ratio of 850:1 at 20% excess air, or 2) No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1114/2114/3114 Pressure Curves

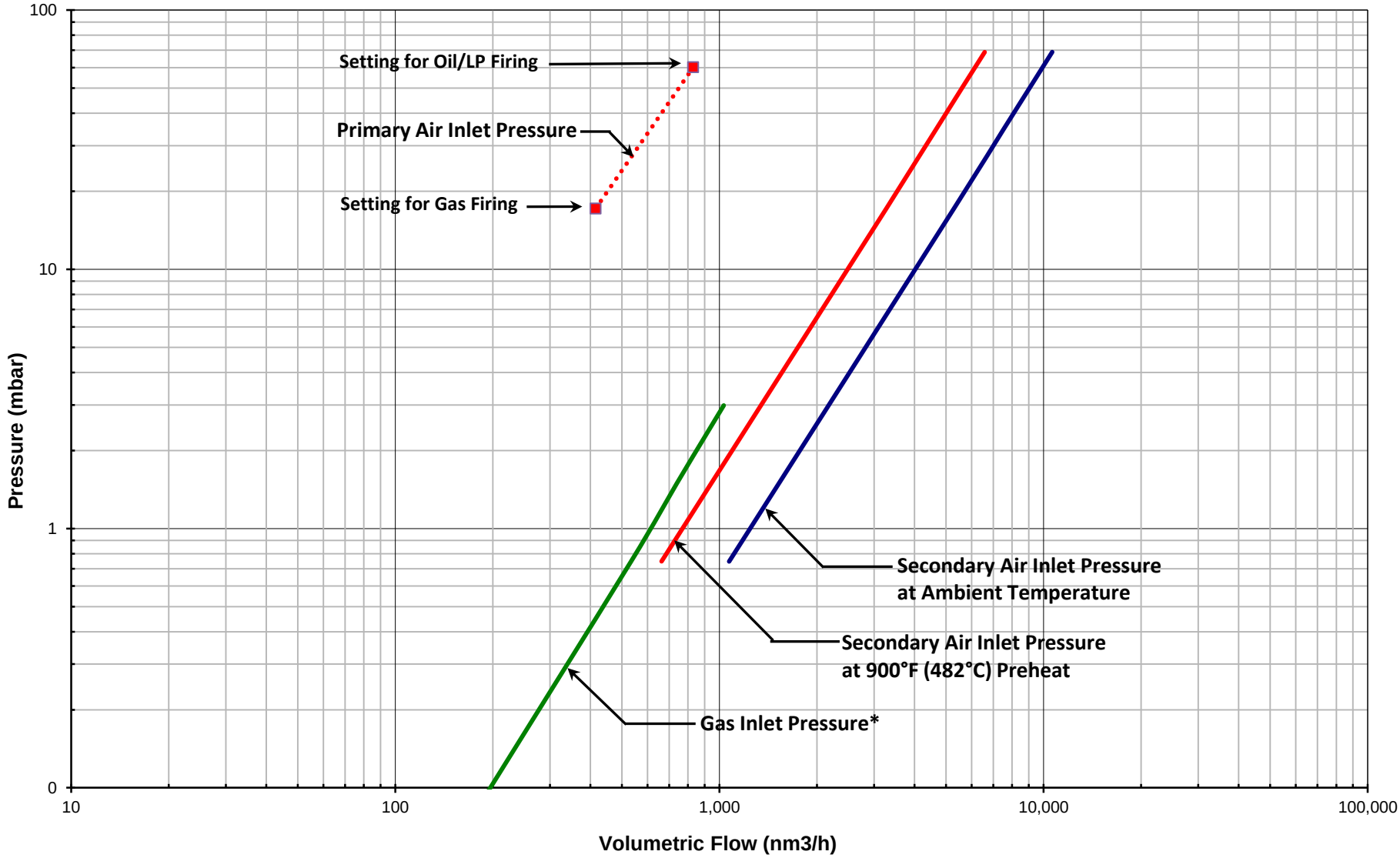
Natural Gas 1034 BTU/ft^3 (HHV Standard) / 10.21 kWh/nm^3 (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

HBC 1114/2114/3114 Pressure Curves

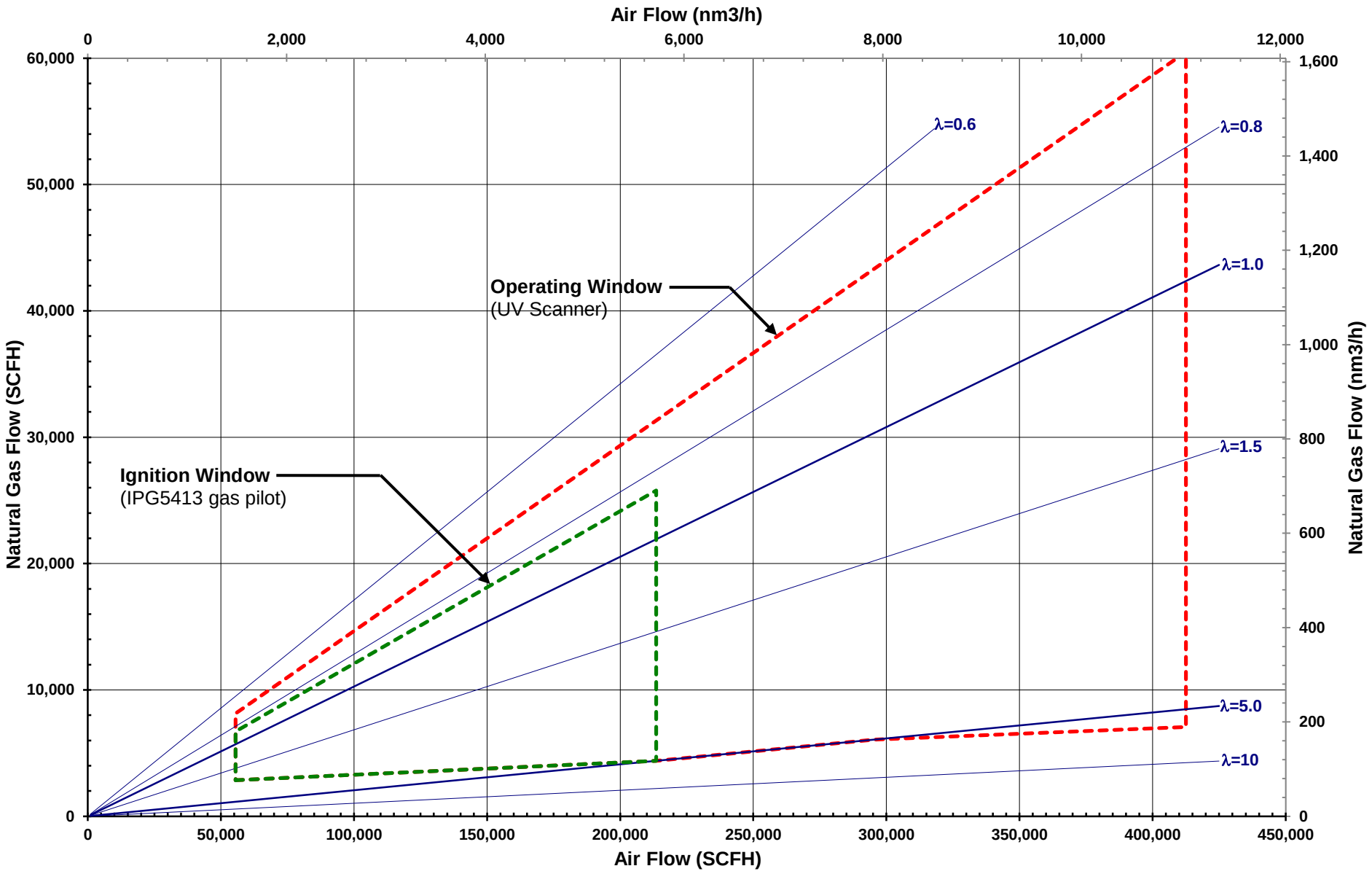
Natural Gas 1034 BTU/ft^3 (HHV Standard) / 10.21 kWh/nm^3 (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

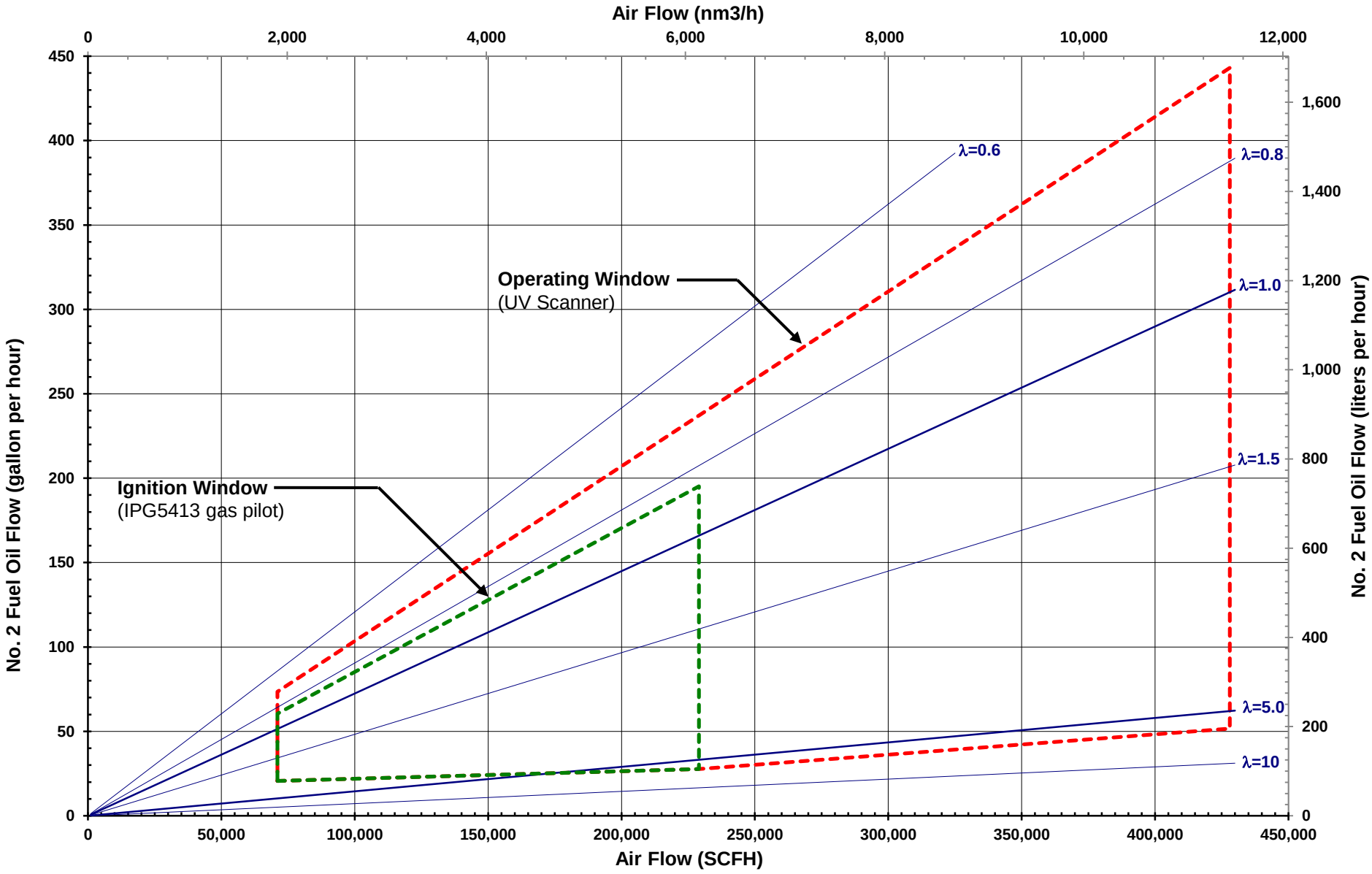
HBC 1114/2114/3114 Operating and Ignition Window

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



HBC 1114/2114/3114 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air



Burner Capacity Information, HBC 1118/2118

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**8,160,000**	**33,830,000**	**47,290,000**	**57,470,000**	**66,160,000**
	(kW)	**2,160**	**8,950**	**12,510**	**15,200**	**17,500**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	15,500	15,500	15,500	15,500	15,500
	(nm^3/hr)	415	415	415	415	415
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	3.3	6.5	9.6	12.7
	(mbar)	0.2	8.2	16.2	23.9	31.6
Flame Length (at 10% Excess Air)	(in)	96	156	168	180	216
	(mm)	2440	3960	4270	4570	5490
Flame Diameter (at 10% Excess Air	(in)	36	48	54	60	66
	(mm)	910	1220	1370	1520	1680
Maximum Operating Excess	(Air)	250%	400%	500%	600%	600%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3118

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**5,620,000**	**21,510,000**	**29,850,000**	**36,150,000**	**41,530,000**
	(kW)	**1,490**	**5,690**	**7,900**	**9,560**	**10,980**
Secondary Air Capacity	(scfh)	42,717	207,392	293,753	359,066	414,784
	(nm^3/hr)	1,144	5,556	7,869	9,619	11,111
Secondary 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
Primary Air Capacity	(scfh)	15,500	15,500	15,500	15,500	15,500
	(nm^3/hr)	415	415	415	415	415
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	2.5	4.9	7.3	9.6
	(mbar)	0.2	6.2	12.3	18.1	24.0
Flame Length (at 10% Excess Air)	(in)	72	117	126	135	162
	(mm)	1830	2970	3200	3430	4110
Flame Diameter (at 10% Excess Air	(in)	32	43	49	54	59
	(mm)	820	1100	1230	1370	1510
Maximum Operating Excess	(Air)	200%	320%	400%	480%	480%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1118/2118

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**8,330,000**	**30,500,000**	**42,130,000**	**50,920,000**	**58,420,000**
	(kW)	**2,200**	**8,070**	**11,140**	**13,470**	**15,450**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	31,000	31,000	31,000	31,000	31,000
	(nm^3/hr)	830	830	830	830	830
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	60	221	305	369	423
	(lph)	228.6	837	1,155	1,397	1,602
Flame Length (at 20% Excess Air)	(in)	60	156	216	240	252
	(mm)	1520	3960	5490	6100	6400
Flame Diameter (at 20% Excess Air	(in)	24	42	48	48	54
	(mm)	610	1070	1220	1220	1370
Maximum Operating Excess	(Air)	100%	300%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3118

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**6,140,000**	**19,870,000**	**27,060,000**	**32,510,000**	**37,150,000**
	(kW)	**1,620**	**5,260**	**7,160**	**8,600**	**9,830**
Secondary Air Capacity	(scfh)	42,717	207,392	293,753	359,066	414,784
	(nm^3/hr)	1,144	5,556	7,869	9,619	11,111
Secondary 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
Primary Air Capacity	(scfh)	31,000	31,000	31,000	31,000	31,000
	(nm^3/hr)	830	830	830	830	830
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	45	144	196	236	269
	(lph)	168.5	545	742	892	1,019
Flame Length(at 20% Excess Air)	(in)	45	117	162	180	189
	(mm)	1140	2970	4110	4570	4800
Flame Diameter(at 20% Excess Air)	(in)	22	38	43	43	49
	(mm)	550	960	1100	1100	1230
Maximum Operating Excess	(Air)	80%	240%	320%	400%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1118/2118

LIQUID PROPANE, AMBIENT COMBUSTION AIR OPERATION, LIQUID PROPANE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**8,970,000**	**32,830,000**	**45,350,000**	**54,810,000**	**62,880,000**
	(kW)	**2,370**	**8,680**	**12,000**	**14,500**	**16,630**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	31,000	31,000	31,000	31,000	31,000
	(nm^3/hr)	830	830	830	830	830
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Liquid Propane Flow	(gph)	98	359	496	599	687
	(lph)	371.1	1,358	1,876	2,267	2,601
Liquid Propane Inlet Pressure	(psig)	3	43	81	119	157
	(bar)	0.2	2.9	5.6	8.2	10.8
Flame Length (at 20% Excess Air)	(in)	60	144	156	216	240
	(mm)	1520	3660	3960	5490	6100
Flame Diameter (at 20% Excess Air)	(in)	24	42	48	54	60
	(mm)	610	1070	1220	1370	1520
Maximum Operating Excess	(Air)	100%	300%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

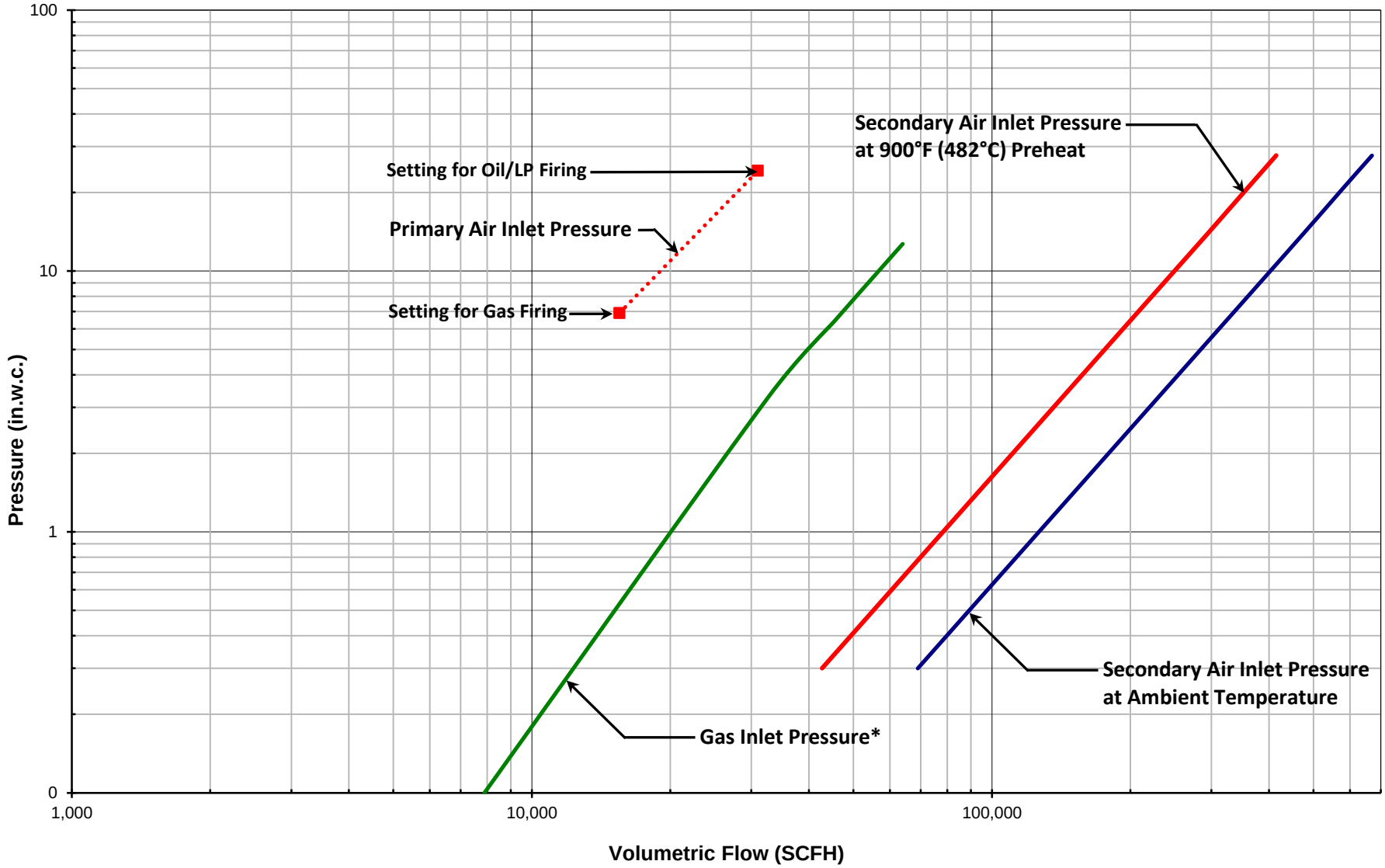
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**8,730,000**	**31,470,000**	**43,420,000**	**52,430,000**	**60,120,000**
	(kW)	**2,310**	**8,320**	**11,480**	**13,870**	**15,900**
Secondary Air Capacity	(scfh)	69,000	335,000	474,500	580,000	670,000
	(nm^3/hr)	1,848	8,974	12,711	15,537	17,948
Secondary 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
Primary Air Capacity	(scfh)	31,000	31,000	31,000	31,000	31,000
	(nm^3/hr)	830	830	830	830	830
Primary Air Inlet Pressure	(in.w.c.)	6.0	6.0	6.0	6.0	6.0
	(mbar)	14.9	14.9	14.9	14.9	14.9
Atomizing Air Capacity	(scfh)	2,280	2,880	3,360	3,450	3,600
	(nm^3/hr)	61	77	90	92	96
Atomizing Air Inlet Pressure	(psig)	18	44	64	74	84
	(bar)	1.2	3.0	4.4	5.1	5.8
Fuel Oil Flow	(gph)	58	210	289	350	401
	(lph)	220	795	1,094	1,325	1,518
Fuel Oil Inlet Pressure	(psig)	20	47	66	77	88
	(bar)	1.4	3.2	4.6	5.3	6.1
Flame Length (at 20% Excess Air)	(in)	84	144	168	192	216
	(mm)	2130	3660	4270	4880	5490
Flame Diameter (at 20% Excess Air)	(in)	24	36	36	42	48
	(mm)	610	910	910	1070	1220
Maximum Operating Excess	(Air)	200%	300%	300%	300%	300%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on 1) Liquid Propane with HHV of 91,500 BTU/gal (Standard) / LHV of 6.5 kWh/liter (Metric), 0.51 S.G.,and a stoichiometric ratio of 850:1 at 20% excess air, or 2) No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1118/2118/3118 Pressure Curves

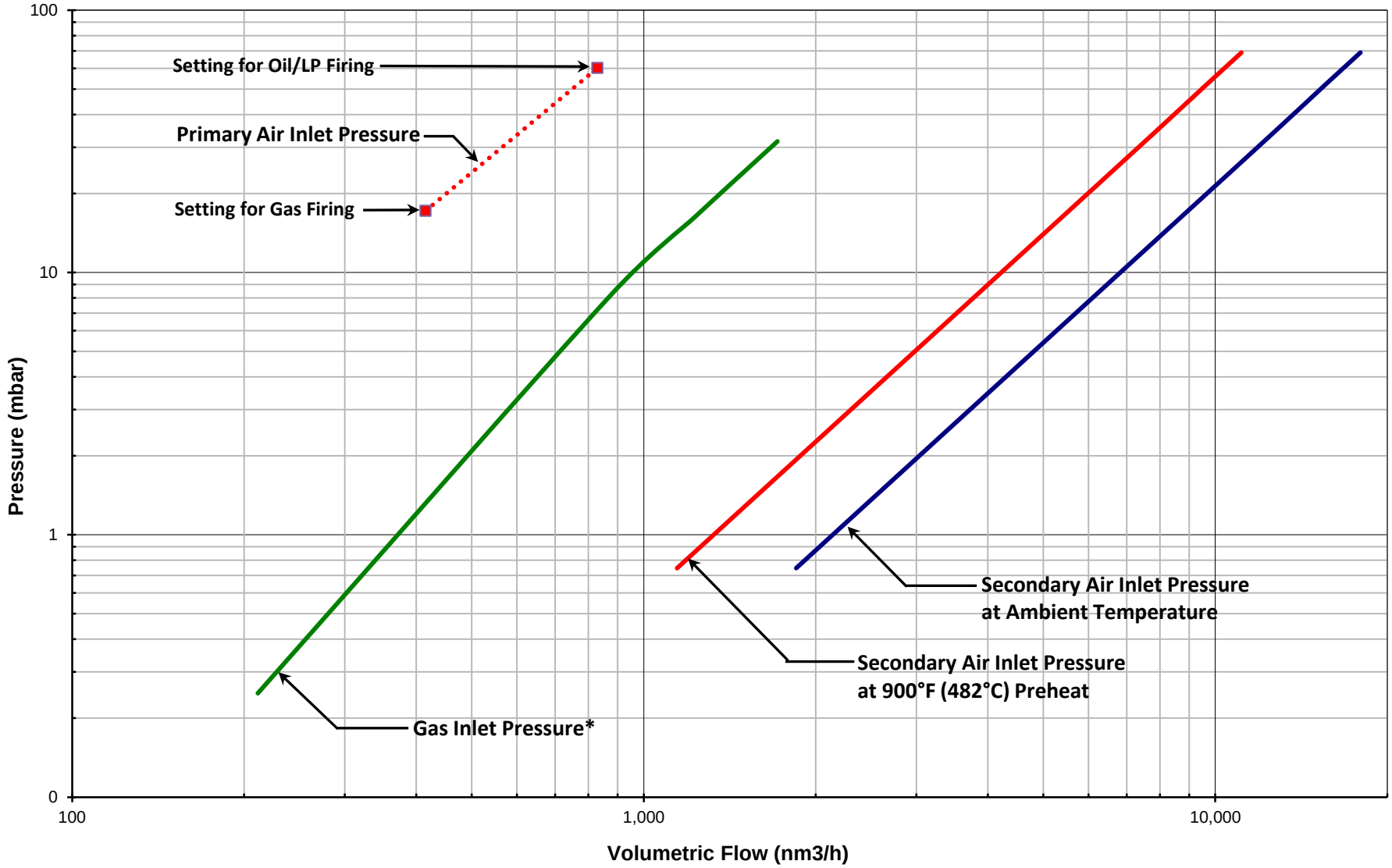
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

HBC 1118/2118/3118 Pressure Curves

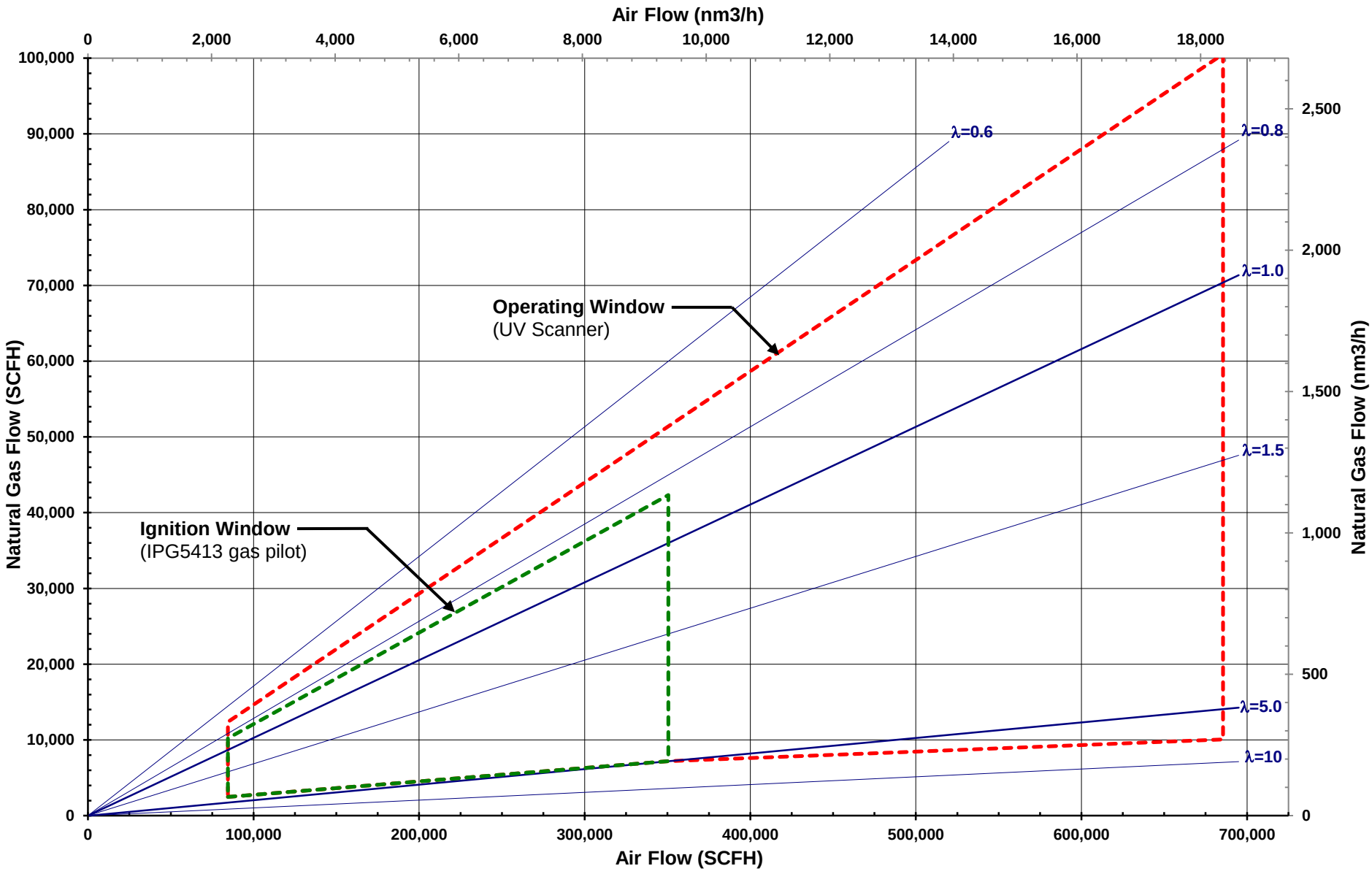
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

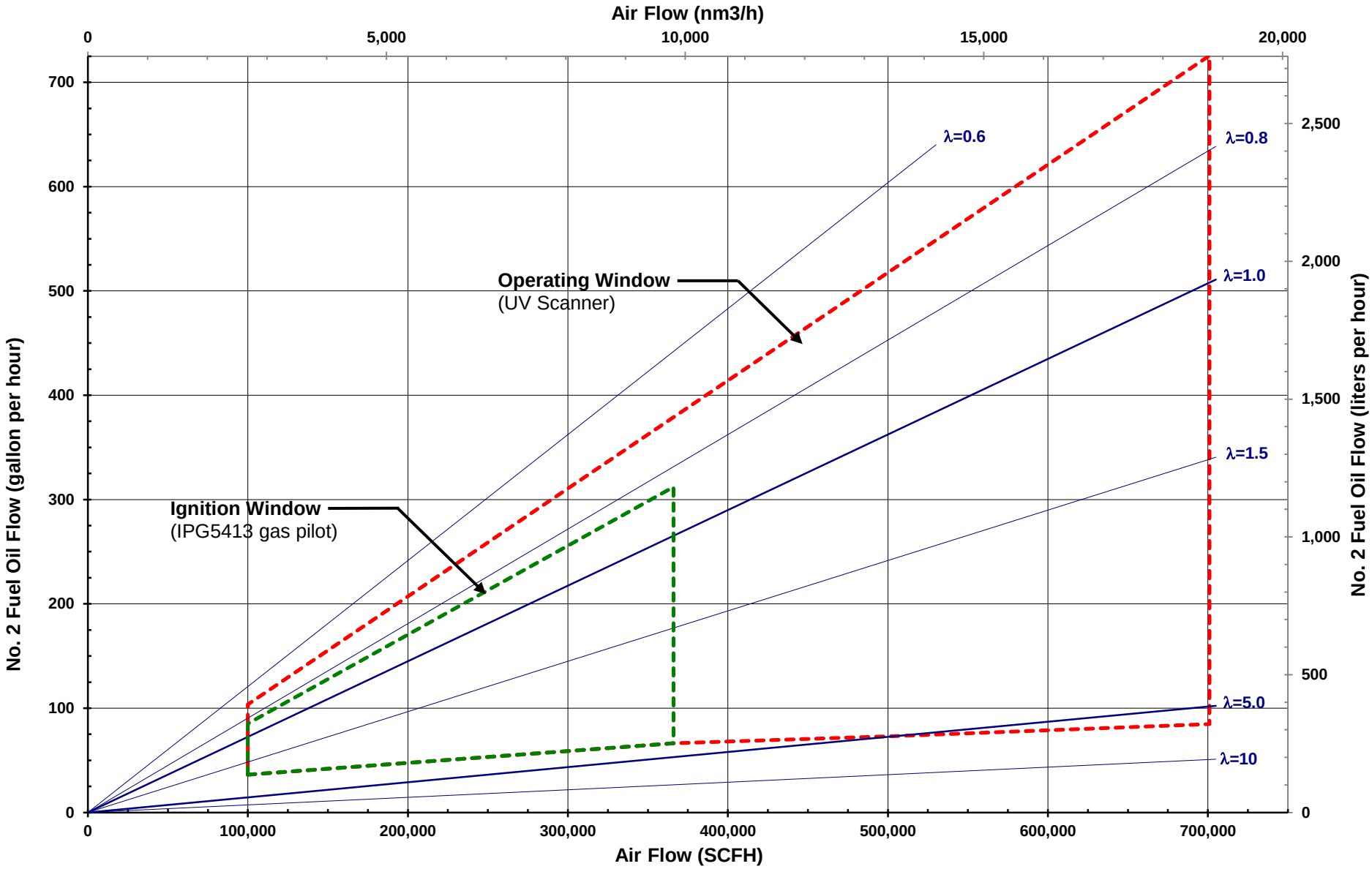
HBC 1118/2118/3118 Operating and Ignition Window

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



HBC 1118/2118/3118 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air



Burner Capacity Information, HBC 1120/2120

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**10,110,000**	**44,440,000**	**62,390,000**	**76,080,000**	**87,780,000**
	(kW)	**2,670**	**11,750**	**16,500**	**20,120**	**23,220**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	11,500	11,500	11,500	11,500	11,500
	(nm^3/hr)	308	308	308	308	308
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	0.4	0.7	1.1	1.5
	(mbar)	0.2	1.0	1.7	2.7	3.7
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%	550%	600%	650%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3120

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**6,680,000**	**27,940,000**	**39,050,000**	**47,520,000**	**54,760,000**
	(kW)	**1,770**	**7,390**	**10,330**	**12,570**	**14,480**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	11,500	11,500	11,500	11,500	11,500
	(nm^3/hr)	308	308	308	308	308
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	0.3	0.5	0.8	1.1
	(mbar)	0.2	0.8	1.3	2.1	2.8
Flame Length (at 10% Excess Air)	(in)	36	126	144	144	162
	(mm)	910	3200	3660	3660	4110
Flame Diameter (at 10% Excess Air	(in)	22	43	43	49	49
	(mm)	550	1100	1100	1230	1230
Maximum Operating Excess	(Air)	200%	400%	440%	480%	520%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1120/2120

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**10,770,000**	**40,420,000**	**55,920,000**	**67,730,000**	**77,840,000**
	(kW)	**2,850**	**10,690**	**14,790**	**17,910**	**20,590**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	36,000	36,000	36,000	36,000	36,000
	(nm^3/hr)	964	964	964	964	964
Primary Air Inlet Pressure	(in.w.c.)	27.7	27.7	27.7	27.7	27.7
	(mbar)	68.9	68.9	68.9	68.9	68.9
Fuel Oil Flow(at 20% Excess Air)	(gph)	78	293	405	491	564
	(lph)	295.5	1,109	1,534	1,858	2,135
Flame Length (at 20% Excess Air)	(in)	48	144	168	192	192
	(mm)	1220	3660	4270	4880	4880
Flame Diameter (at 20% Excess Air	(in)	24	36	42	48	48
	(mm)	610	910	1070	1220	1220
Maximum Operating Excess	(Air)	250%	350%	400%	450%	500%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3120

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**7,810,000**	**26,160,000**	**35,760,000**	**43,070,000**	**49,330,000**
	(kW)	**2,070**	**6,920**	**9,460**	**11,390**	**13,050**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	36,000	36,000	36,000	36,000	36,000
	(nm^3/hr)	964	964	964	964	964
Primary Air Inlet Pressure	(in.w.c.)	27.7	27.7	27.7	27.7	27.7
	(mbar)	68.9	68.9	68.9	68.9	68.9
Fuel Oil Flow(at 20% Excess Air)	(gph)	57	190	259	312	357
	(lph)	214.3	718	981	1,181	1,353
Flame Length(at 20% Excess Air)	(in)	36	108	126	144	144
	(mm)	910	2740	3200	3660	3660
Flame Diameter(at 20% Excess Air)	(in)	22	32	38	43	43
	(mm)	550	820	960	1100	1100
Maximum Operating Excess	(Air)	200%	280%	320%	360%	400%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1120/2120

LIQUID PROPANE, AMBIENT COMBUSTION AIR OPERATION, LIQUID PROPANE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**11,600,000**	**43,510,000**	**60,190,000**	**72,910,000**	**83,790,000**
	(kW)	**3,070**	**11,510**	**15,920**	**19,280**	**22,160**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	36,000	36,000	36,000	36,000	36,000
	(nm^3/hr)	964	964	964	964	964
Primary Air Inlet Pressure	(in.w.c.)	27.7	27.7	27.7	27.7	27.7
	(mbar)	68.9	68.9	68.9	68.9	68.9
Liquid Propane Flow	(gph)	127	476	658	797	916
	(lph)	479.8	1,800	2,490	3,016	3,466
Liquid Propane Inlet Pressure	(psig)	5	75	144	211	278
	(bar)	0.4	5.2	9.9	14.5	19.2
Flame Length (at 20% Excess Air)	(in)	48	144	192	192	216
	(mm)	1220	3660	4880	4880	5490
Flame Diameter (at 20% Excess Air)	(in)	24	42	48	54	54
	(mm)	610	1070	1220	1370	1370
Maximum Operating Excess	(Air)	100%	300%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

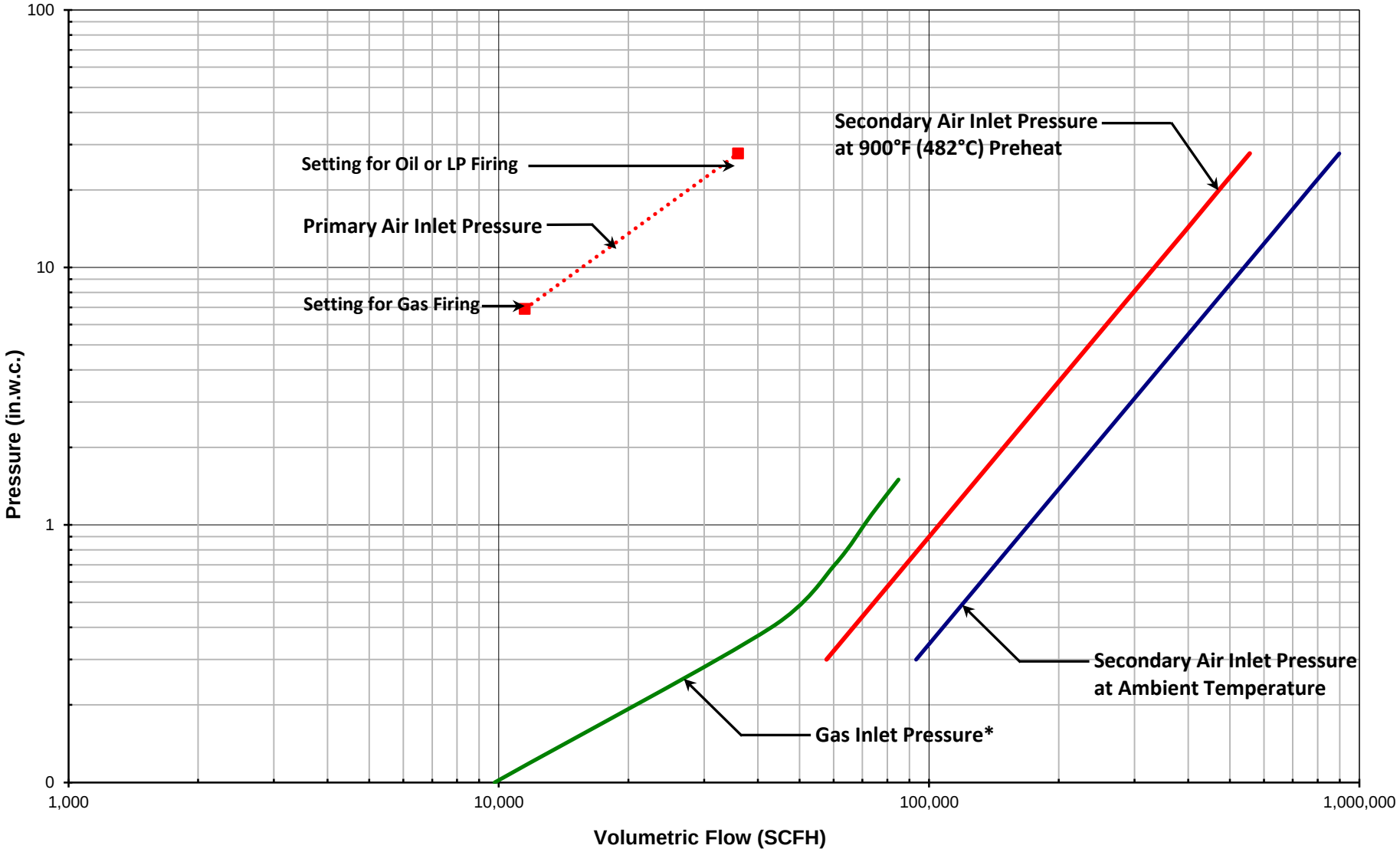
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**9,140,000**	**39,540,000**	**55,450,000**	**67,550,000**	**77,910,000**
	(kW)	**2,420**	**10,460**	**14,670**	**17,870**	**20,610**
Secondary Air Capacity	(scfh)	93,288	449,013	635,000	776,780	898,025
	(nm^3/hr)	2,499	12,028	17,010	20,808	24,056
Secondary 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
Primary Air Capacity	(scfh)	11,500	11,500	11,500	11,500	11,500
	(nm^3/hr)	308	308	308	308	308
Primary Air Inlet Pressure	(in.w.c.)	6.0	6.0	6.0	6.0	6.0
	(mbar)	14.9	14.9	14.9	14.9	14.9
Atomizing Air Capacity	(scfh)	2,280	2,880	3,360	3,450	3,600
	(nm^3/hr)	61	77	90	92	96
Atomizing Air Inlet Pressure	(psig)	18	44	64	74	84
	(bar)	1.2	3.0	4.4	5.1	5.8
Fuel Oil Flow	(gph)	61	264	370	450	519
	(lph)	231	999	1,400	1,703	1,964
Fuel Oil Inlet Pressure	(psig)	20	47	66	77	88
	(bar)	1.4	3.2	4.6	5.3	6.1
Flame Length (at 20% Excess Air)	(in)	48	144	168	192	192
	(mm)	1220	3660	4270	4880	4880
Flame Diameter (at 20% Excess Air)	(in)	24	42	42	48	48
	(mm)	610	1070	1070	1220	1220
Maximum Operating Excess	(Air)	200%	300%	300%	300%	300%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on 1) Liquid Propane with HHV of 91,500 BTU/gal (Standard) / LHV of 6.5 kWh/liter (Metric), 0.51 S.G.,and a stoichiometric ratio of 850:1 at 20% excess air, or 2) No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via IPG5413 gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1120/2120/3120 Pressure Curves

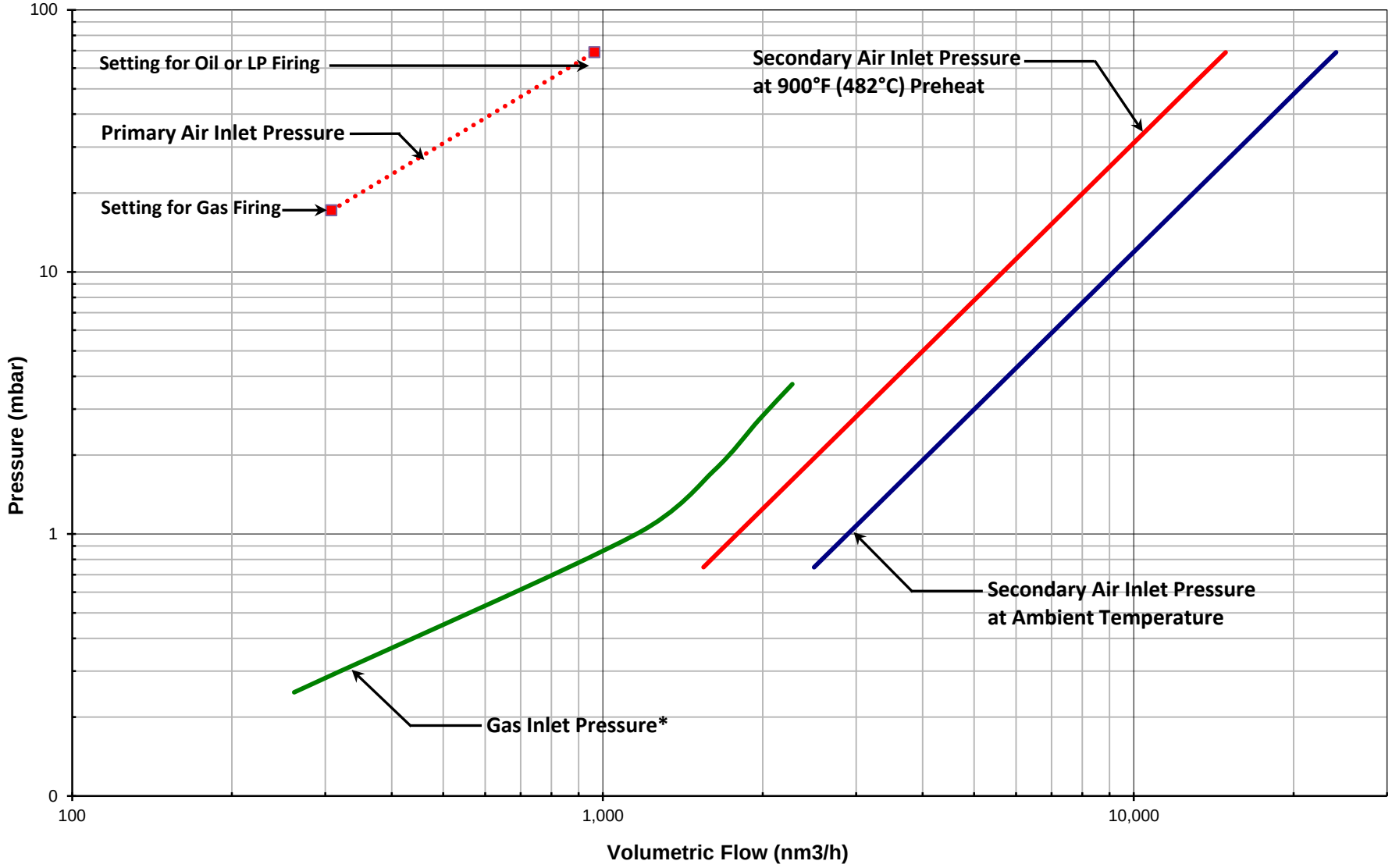
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

HBC 1120/2120/3120 Pressure Curves

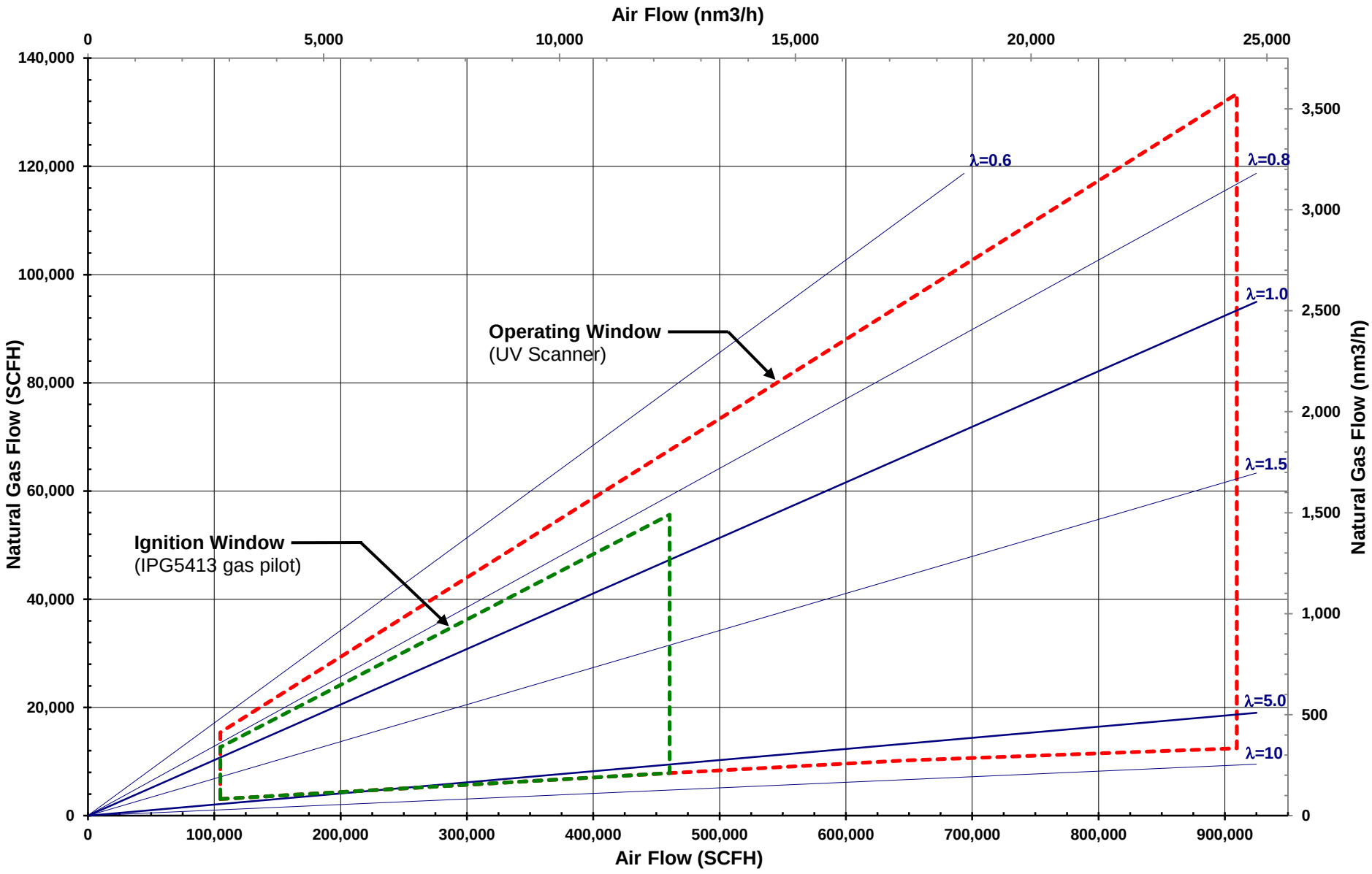
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

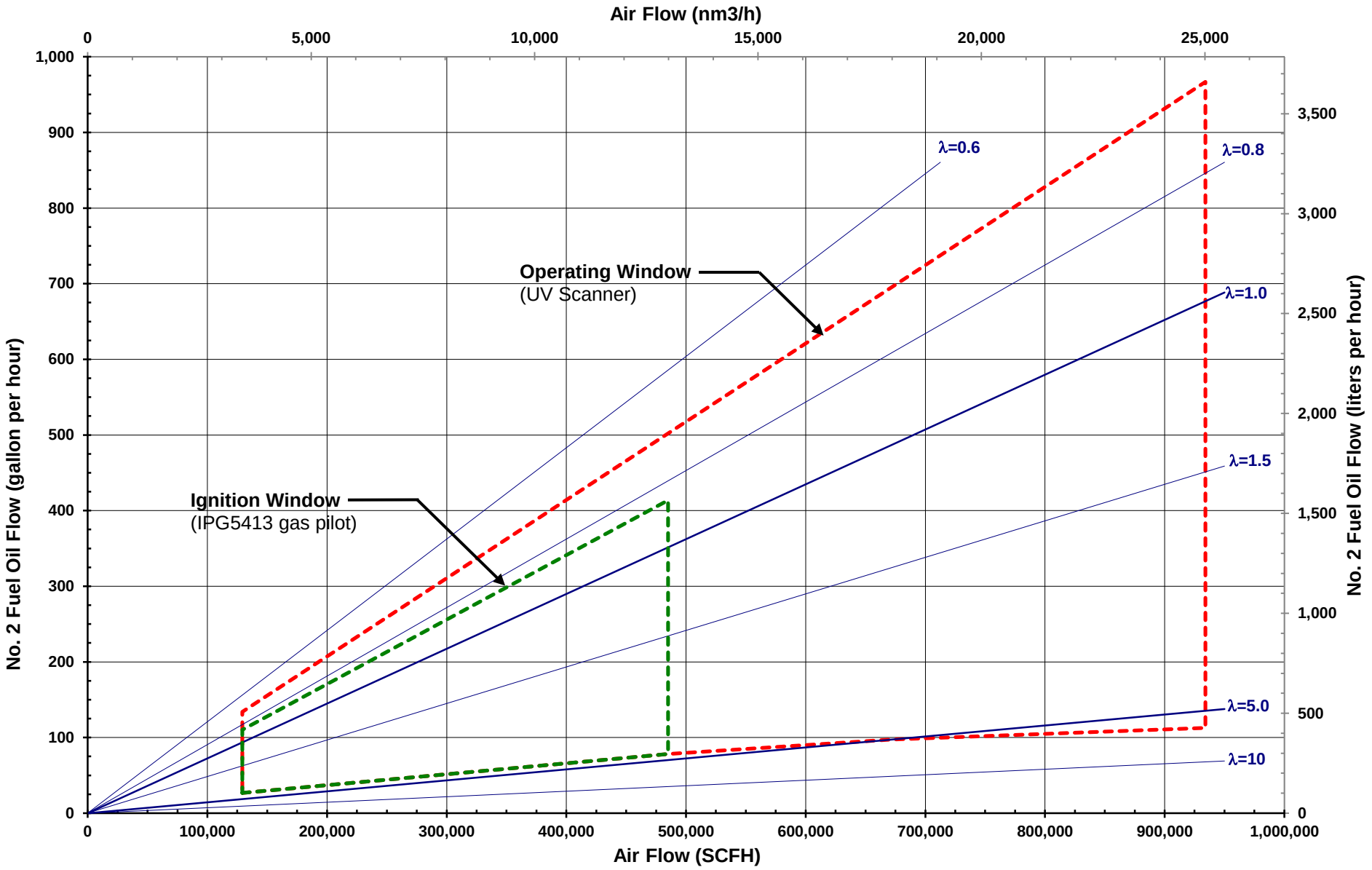
HBC 1120/2120/3120 Operating and Ignition Window

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



HBC 1120/2120/3120 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air



Burner Capacity Information, HBC 1124/2124

NATURAL GAS, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**14,040,000**	**63,260,000**	**88,840,000**	**107,660,000**	**124,550,000**
	(kW)	**3,710**	**16,730**	**23,500**	**28,480**	**32,940**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	15,500	15,500	15,500	15,500	15,500
	(nm^3/hr)	415	415	415	415	415
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	2.5	5.4	7.9	10.6
	(mbar)	0.2	6.2	13.4	19.7	26.4
Flame Length (at 10% Excess Air)	(in)	72	264	300	312	324
	(mm)	1830	6710	7620	7920	8230
Flame Diameter (at 10% Excess Air	(in)	36	48	54	60	66
	(mm)	910	1220	1370	1520	1680
Maximum Operating Excess	(Air)	100%	400%	500%	600%	600%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3124

NATURAL GAS, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 10% Excess Air)	**(BTU/hr)**	**9,260,000**	**39,730,000**	**55,570,000**	**67,220,000**	**77,670,000**
	(kW)	**2,450**	**10,510**	**14,700**	**17,780**	**20,540**
Secondary Air Capacity	(scfh)	80,480	396,211	560,267	680,988	789,327
	(nm^3/hr)	2,156	10,614	15,008	18,242	21,144
Secondary 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
Primary Air Capacity	(scfh)	15,500	15,500	15,500	15,500	15,500
	(nm^3/hr)	415	415	415	415	415
Primary Air Inlet Pressure	(in.w.c.)	6.9	6.9	6.9	6.9	6.9
	(mbar)	17.2	17.2	17.2	17.2	17.2
Gas Inlet Pressure	(in.w.c.)	0.1	1.9	4.1	6.0	8.0
	(mbar)	0.2	4.7	10.2	14.9	20.0
Flame Length (at 10% Excess Air)	(in)	54	198	225	234	243
	(mm)	1370	5030	5720	5940	6170
Flame Diameter (at 10% Excess Air	(in)	32	43	49	54	59
	(mm)	820	1100	1230	1370	1510
Maximum Operating Excess	(Air)	80%	320%	400%	480%	480%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on Natural Gas with HHV of 1034 BTU/ft^3 (Standard) / LHV of 10.21 kWh/nm3 (Metric), 0.59 S.G.,and a stoichiometric ratio of 9.74:1 at 10% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via integral gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1124/2124

NO. 2 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**13,920,000**	**56,420,000**	**78,500,000**	**94,750,000**	**109,330,000**
	(kW)	**3,680**	**14,920**	**20,760**	**25,060**	**28,920**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	37,000	37,000	37,000	37,000	37,000
	(nm^3/hr)	991	991	991	991	991
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	101	409	569	687	792
	(lph)	382	1,547	2,153	2,599	2,999
Flame Length (at 20% Excess Air)	(in)	108	168	216	240	252
	(mm)	2740	4270	5490	6100	6400
Flame Diameter (at 20% Excess Air	(in)	24	56	60	66	66
	(mm)	610	1420	1520	1680	1680
Maximum Operating Excess	(Air)	200%	1000%	1000%	1000%	1000%
	(Fuel)	30%	30%	30%	30%	30%

Burner Capacity Information, HBC 3124

NO. 2 FUEL OIL, 900°F/482°C PREHEATED SECONDARY AIR OPERATION, LOW PRESSURE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**9,790,000**	**36,100,000**	**49,770,000**	**59,830,000**	**68,860,000**
	(kW)	**2,590**	**9,550**	**13,160**	**15,830**	**18,210**
Secondary Air Capacity	(scfh)	80,480	396,211	560,267	680,988	789,327
	(nm^3/hr)	2,156	10,614	15,008	18,242	21,144
Secondary 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
Primary Air Capacity	(scfh)	37,000	37,000	37,000	37,000	37,000
	(nm^3/hr)	991	991	991	991	991
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Fuel Oil Flow(at 20% Excess Air)	(gph)	71	262	361	434	499
	(lph)	269	990	1,365	1,641	1,889
Flame Length(at 20% Excess Air)	(in)	81	126	162	180	189
	(mm)	2060	3200	4110	4570	4800
Flame Diameter(at 20% Excess Air)	(in)	22	50	54	59	59
	(mm)	550	1280	1370	1510	1510
Maximum Operating Excess	(Air)	160%	800%	800%	800%	800%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on No. 2 Fuel Oil with HHV of 138,000 BTU/USgal (Standard) / LHV of 10.3 kWh/liter (Metric), 0.87 S.G., and a stoichiometric ratio of 1380:1 at 20% excess air; with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via integral gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

Burner Capacity Information, HBC 1124/2124

LIQUID PROPANE, AMBIENT COMBUSTION AIR OPERATION, LIQUID PROPANE ATOMIZATION

SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**14,440,000**	**60,190,000**	**83,960,000**	**101,460,000**	**117,160,000**
	(kW)	**3,820**	**15,920**	**22,210**	**26,840**	**30,990**
Secondary 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
Secondary 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
Primary Air Capacity	(scfh)	31,000	31,000	31,000	31,000	31,000
	(nm^3/hr)	830	830	830	830	830
Primary Air Inlet Pressure	(in.w.c.)	24.2	24.2	24.2	24.2	24.2
	(mbar)	60.2	60.2	60.2	60.2	60.2
Liquid Propane Flow	(gph)	158	658	918	1,109	1,280
	(lph)	597	2,490	3,473	4,197	4,846
Liquid Propane Inlet Pressure	(psig)	1	23	45	65	87
	(bar)	0.1	1.6	3.1	4.5	6.0
Flame Length (at 20% Excess Air)	(in)	72	228	252	276	300
	(mm)	1830	5790	6400	7010	7620
Flame Diameter(at 20% Excess Air)	(in)	24	48	54	60	66
	(mm)	610	1220	1370	1520	1680
Maximum Operating Excess	(Air)	100%	300%	400%	500%	500%
	(Fuel)	30%	30%	30%	30%	30%

NO. 6 FUEL OIL, AMBIENT COMBUSTION AIR OPERATION, HIGH PRESSURE ATOMIZATION

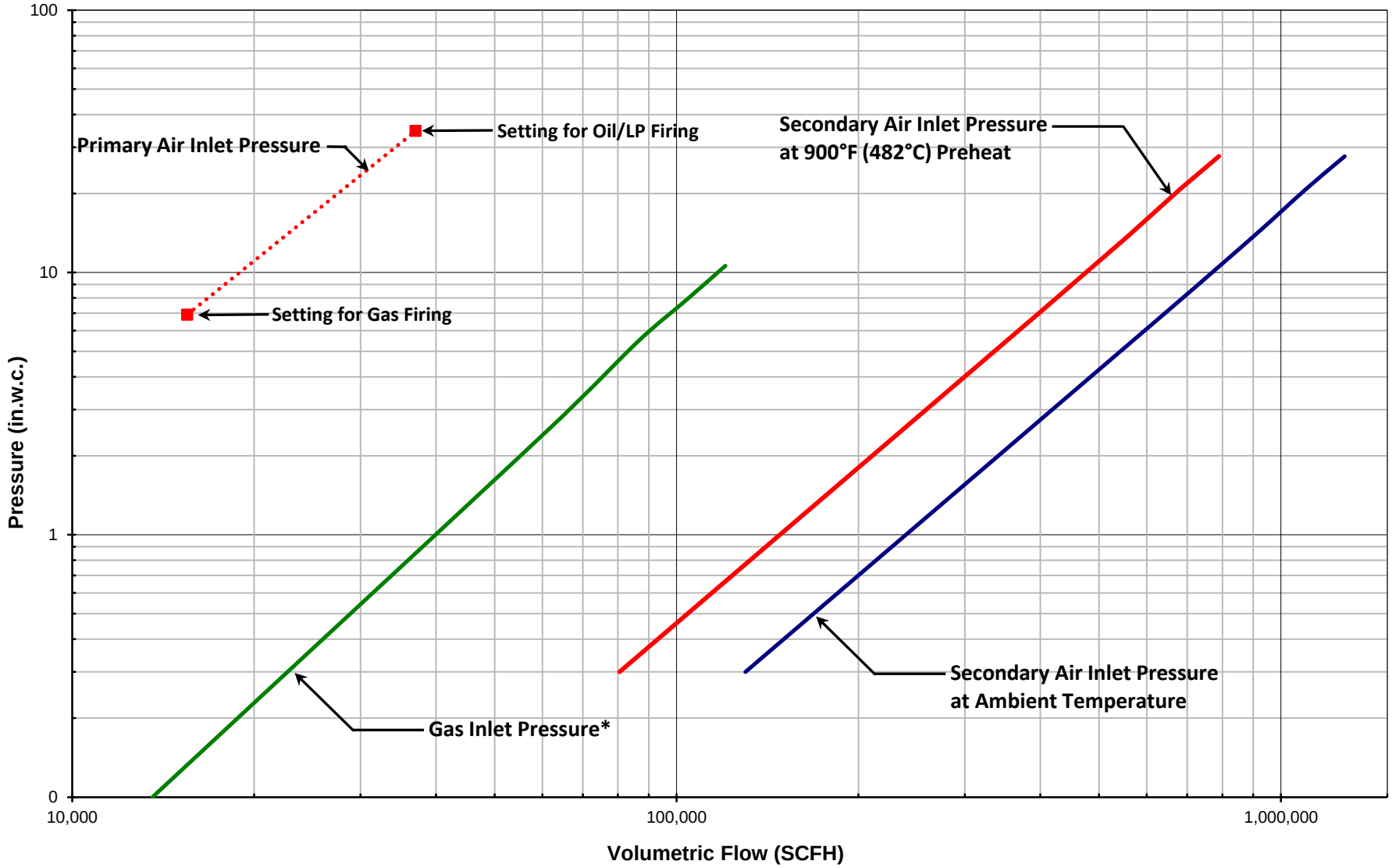
SPECIFICATIONS		OPERATIONAL INFORMATION				
Capacity (at 20% Excess Air)	**(BTU/hr)**	**12,430,000**	**55,960,000**	**78,580,000**	**95,230,000**	**110,160,000**
	(kW)	**3,290**	**14,800**	**20,780**	**25,190**	**29,140**
Secondary Air Capacity	(scfh)	130,000	640,000	905,000	1,100,000	1,275,000
	(nm^3/hr)	3,482	17,144	24,243	29,467	34,155
Secondary 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
Primary Air Capacity	(scfh)	12,100	12,100	12,100	12,100	12,100
	(nm^3/hr)	324	324	324	324	324
Primary Air Inlet Pressure	(in.w.c.)	4.0	4.0	4.0	4.0	4.0
	(mbar)	10.0	10.0	10.0	10.0	10.0
Atomizing Air Capacity	(scfh)	3,600	3,800	3,900	4,000	4,000
	(nm^3/hr)	96	102	104	107	107
Atomizing Air Inlet Pressure	(psig)	16	42	46	50	55
	(bar)	1.1	2.9	3.2	3.4	3.8
Fuel Oil Flow	(gph))	83	373	524	635	734
	(lph)	314	1,412	1,983	2,403	2,778
Fuel Oil Inlet Pressure	(psig)	25	46	52	56	62
	(bar)	1.7	3.2	3.6	3.9	4.3
Flame Length(at 20% Excess Air)	(in)	96	180	192	204	216
	(mm)	2440	4570	4880	5180	5490
Flame Diameter(at 20% Excess Air)	(in)	24	36	42	48	48
	(mm)	610	910	1070	1220	1220
Maximum Operating Excess	(Air)	500%	600%	700%	700%	700%
	(Fuel)	30%	30%	30%	30%	30%

NOTES:

1. Capacities based on 1) Liquid Propane with HHV of 91,500 BTU/gal (Standard) / LHV of 6.5 kWh/liter (Metric), 0.51 S.G.,and a stoichiometric ratio of 850:1 at 20% excess air, or 2) No. 6 Fuel Oil with HHV of 150,000 BTU/USgal (Standard) / LHV of 11.2 kWh/liter (Metric), 1.02 S.G., and a stoichiometric ratio of 1465:1 at 20% excess air; all cases with burner firing into chamber under no pressure.
2. Air and fuel flows based on STP operating conditions at sea level and industry standard air and gas piping practices.
3. Fuel inlet pressures given for reference only and should not be used for measuring fuel flow to the burner.
4. Flame lengths measured from end of the combustion tile.
5. Flame detection via UV scanner; for detection limits refer to the Burner Operating and Ignition Window.
6. Ignition via integral gas pilot; for ignition limits refer to the Burner Operating and Ignition Window.
7. Burner is suitable for use on gaseous and liquid fuels other than those listed, and with combustion air other than ambient temperature or that listed; for further information consult Heatflam.

HBC 1124/2124/3124 Pressure Curves

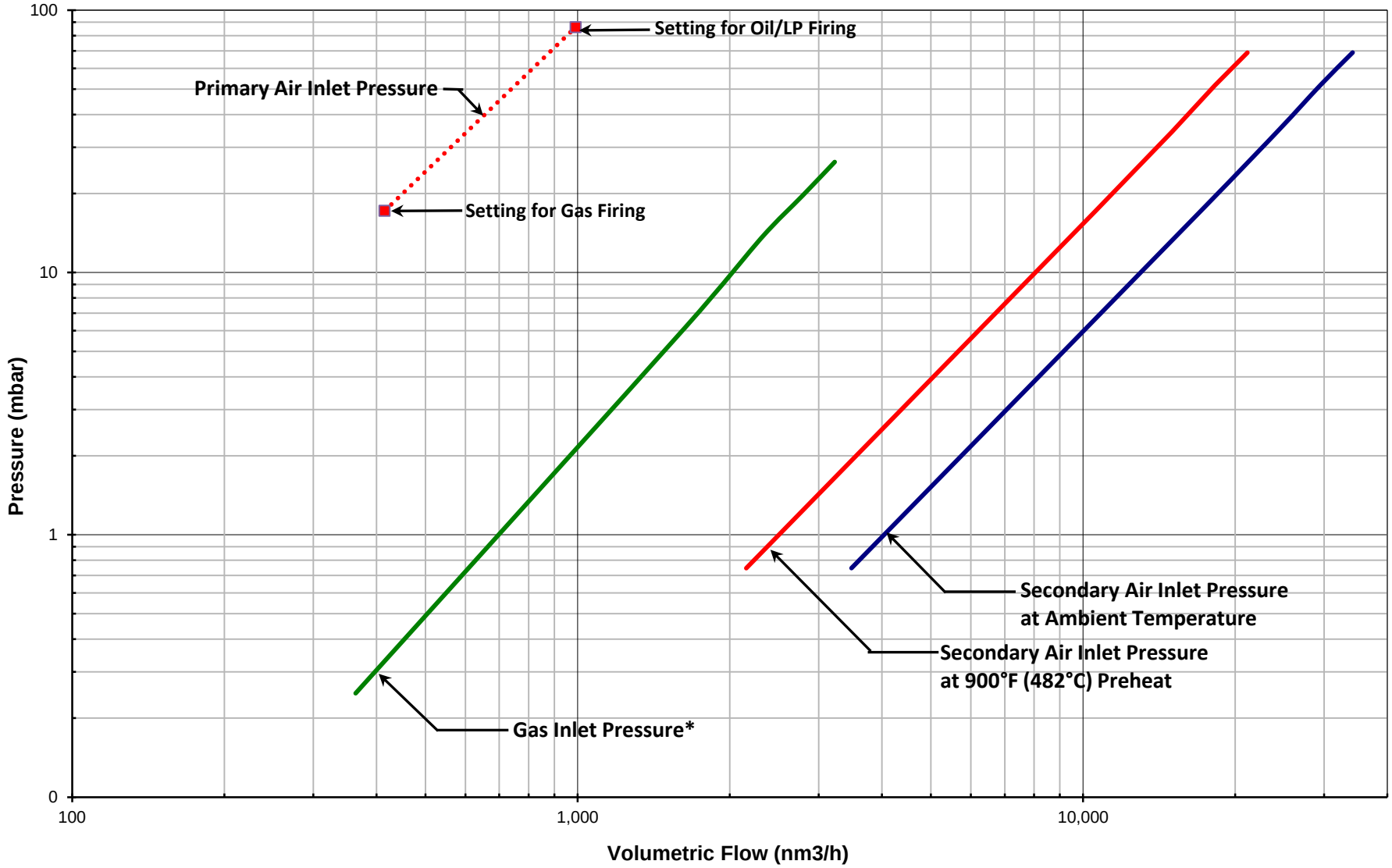
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

HBC 1124/2124/3124 Pressure Curves

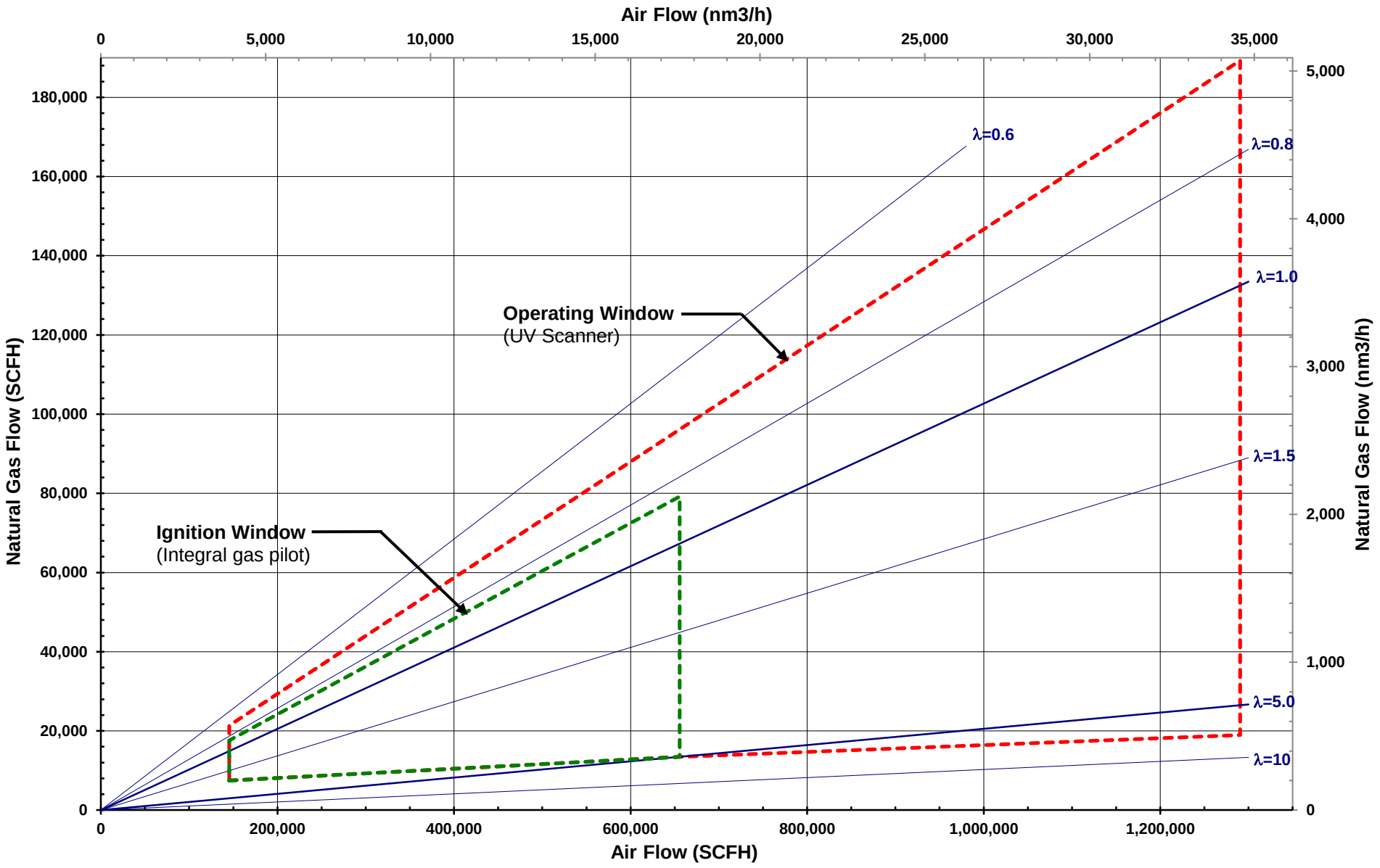
Natural Gas 1034 BTU/ft³ (HHV Standard) / 10.21 kWh/nm³ (LHV Metric), 0.59 S.G. and Ambient and Preheated Combustion Air



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

HBC 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



HBC 1118/2118/3118 Operating and Ignition Window

No. 2 Fuel Oil 138,000 BTU/gal (HHV Standard) / 10.3 kWh/liter (LHV Metric), 0.87 S.G. and Ambient Combustion Air