

Eclipse ER Indirect Air Heater

Data sheet Edition 1.15

Version 1

Standard Efficiency with Small Burner

(1/2" Spacing Heat Exchanger at 900°F Recirculation Temperature)

Parameter	ER Heater Size								
	1	2	3	4	5	6	7	8	9
Maximum Process Air Delivery Temp., °F (°C)	646 (341)	724 (384)	723 (384)	719 (382)	715 (379)	727 (386)	722 (384)	723 (384)	720 (382)
Maximum Process Air Flow Rate, scfm (Nm ³ /h) ¹	1,918 (3,025)	2,628 (4,145)	3,600 (5,678)	4,932 (7,778)	6,757 (10,657)	9,257 (14,599)	12,682 (20,001)	17,374 (27,401)	20,839 (32,866)
Maximum Process Air Pressure Drop, "w.c. (mbar)	1.2 (3.0)	1.1 (2.7)	1.2 (3.0)	1.4 (3.5)	1.5 (3.7)	1.4 (3.5)	1.6 (4.0)	1.6 (4.0)	1.5 (3.7)
Maximum Heat Transfer, MMBtu/h (kW)	0.9 (264)	1.5 (440)	2.0 (586)	2.8 (821)	3.8 (1,114)	5.3 (1,553)	7.2 (2,110)	9.9 (2,901)	11.5 (3,370)
Maximum Burner Firing Demand, MMBtu/h (kW)	1.2 (352)	1.8 (528)	2.5 (733)	3.4 (996)	4.6 (1,348)	6.4 (1,876)	8.7 (2,550)	12.0 (3,517)	14.1 (4,132)
Gas Pressure Requirement into Valve Train	5 psig (350 mbarg)								
Fuel Options	Natural Gas, Propane, Butane (Contact Eclipse for others.)								
Combustion Air Blower Motor Rating, bhp (kW) ²	3 (2.2)	5 (3.7)	5 (3.7)	5 (3.7)	7.5 (5.6)	15 (11)	50 (37)	40 (30)	50 (37)
Recirculation Air Fan Motor Rating, bhp (kW) ³	10 (7.5)	10 (7.5)	15 (11)	20 (15)	30 (22)	40 (30)	50 (37)	60 (45)	80 (60)
Unit Weight, lbs (kg) ⁴	6,142 (2,786)	7,546 (3,423)	11,833 (5,367)	13,778 (6,250)	16,313 (7,400)	19,610 (8,895)	24,450 (11,090)	30,570 (13,866)	35,763 (16,222)

¹ Scfm referenced to 70°F at 1 atmosphere (14.696 psia), Nm³/h referenced to 0°C at 1 atmosphere (0.9869 bar). The maximum process air flow cannot be heated to the corresponding maximum process air delivery temperature. See performance curves on page 3 for correlated air flow and temperature values.

² Assuming 230 - 460 VAC / 3 Phase / 60Hz electrical power. Please contact Eclipse for other electrical power options.

³ Size 8 unit uses two 30 HP (22 kW) motors. Size 9 unit uses two 40 HP (30 kW) motors.

⁴ All weights are approximate.

- See Design Guide 121, to be used in conjunction with the following curves, to complete design and selection.
- All information is based on laboratory testing with neutral (0.0" w.c.) exhaust conditions.
- All inputs based upon gross calorific values and standard conditions: 1 atmosphere, 70°F (21°C).
- Plumbing of gas will affect accuracy of orifice readings. All information based on general acceptable air and gas piping practices.
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- Eclipse reserves the right to change the construction and/or configuration of our products at any time without being obliged to adjust earlier supplies accordingly.

Standard Efficiency with Large Burner
(1/2" Spacing Heat Exchanger at 900°F Recirculation Temperature)

Parameter	ER Heater Size								
	1	2	3	4	5	6	7	8	9
Maximum Process Air Delivery Temp., °F (°C)	411 (210)	469 (243)	469 (243)	466 (241)	463 (240)	472 (244)	469 (243)	470 (243)	464 (240)
Maximum Process Air Flow Rate, scfm (Nm ³ /h) ¹	4,795 (7,562)	6,569 (10,360)	9,000 (14,194)	12,330 (19,446)	16,892 (26,641)	23,142 (36,498)	31,705 (50,003)	43,436 (68,504)	52,098 (82,165)
Maximum Process Air Pressure Drop, "w.c. (mbar)	4.5 (11.2)	3.4 (8.5)	3.5 (8.7)	3.9 (9.7)	4.3 (10.7)	4.8 (12.0)	5.4 (13.5)	5.4 (13.5)	5.3 (13.2)
Maximum Heat Transfer, MMBtu/h (kW)	1.3 (381)	2.0 (586)	2.8 (821)	3.8 (1,114)	5.2 (1,524)	7.2 (2,110)	9.8 (2,872)	13.5 (3,956)	15.7 (4,601)
Maximum Burner Firing Demand, MMBtu/h (kW)	1.5 (440)	2.4 (703)	3.2 (938)	4.4 (1,290)	6.0 (1,758)	8.4 (2,462)	11.4 (3,341)	15.6 (4,572)	18.3 (5,363)
Gas Pressure Requirement into Valve Train	5 psig (350 mbarg)								
Fuel Options	Natural Gas, Propane, Butane (Contact Eclipse for others.)								
Combustion Air Blower Motor Rating, bhp (kW) ²	5 (3.7)	5 (3.7)	7.5 (5.6)	7.5 (5.6)	15 (11)	50 (37)	40 (30)	50 (37)	60 (45)
Recirculation Air Fan Motor Rating, bhp (kW) ³	10 (7.5)	10 (7.5)	15 (11)	20 (15)	30 (22)	40 (30)	50 (37)	60 (45)	80 (60)
Unit Weight, lbs (kg) ⁴	6,142 (2,786)	7,546 (3,423)	11,833 (5,367)	13,778 (6,250)	16,313 (7,400)	19,610 (8,895)	24,450 (11,090)	30,570 (13,866)	35,763 (16,222)

¹ Scfm referenced to 70°F at 1 atmosphere (14.696 psia), Nm³/h referenced to 0°C at 1 atmosphere (0.9869 bar). The maximum process air flow cannot be heated to the corresponding maximum process air delivery temperature. See performance curves on page 3 for correlated air flow and temperature values.

² Assuming 230 - 460 VAC / 3 Phase / 60Hz electrical power. Please contact Eclipse for other electrical power options.

³ Size 8 unit uses two 30 HP (22 kW) motors. Size 9 unit uses two 40 HP (30 kW) motors.

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High Efficiency with Small Burner
(3/8" Spacing Heat Exchanger at 900°F Recirculation Temperature)

Parameter	ER Heater Size								
	1	2	3	4	5	6	7	8	9
Maximum Process Air Delivery Temp., °F (°C)	689 (365)	778 (414)	777 (414)	774 (412)	771 (411)	780 (416)	776 (413)	777 (414)	774 (412)
Maximum Process Air Flow Rate, scfm (Nm ³ /h) ¹	1,918 (3,025)	2,628 (4,145)	3,600 (5,678)	4,932 (7,778)	6,757 (10,657)	9,257 (14,599)	12,682 (20,001)	17,374 (27,401)	20,839 (32,866)
Maximum Process Air Pressure Drop, "w.c. (mbar)	1.4 (3.5)	1.6 (4.0)	1.7 (4.2)	1.9 (4.7)	2.1 (5.2)	1.9 (4.7)	2.1 (5.2)	2.1 (5.2)	2.0 (5.0)
Maximum Heat Transfer, MMBtu/h (kW)	1.0 (293)	1.7 (469)	2.3 (674)	3.1 (909)	4.2 (1,231)	5.9 (1,729)	8.0 (2,345)	10.9 (3,194)	12.7 (3,722)
Maximum Burner Firing Demand, MMBtu/h (kW)	1.3 (381)	2.0 (586)	2.7 (791)	3.7 (1,084)	5.0 (1,465)	7.0 (2,051)	9.5 (2,784)	13.0 (4,836)	15.3 (4,484)
Gas Pressure Requirement into Valve Train	5 psig (350 mbarg)								
Fuel Options	Natural Gas, Propane, Butane (Contact Eclipse for others.)								
Combustion Air Blower Motor Rating, bhp (kW) ²	3 (2.2)	5 (3.7)	5 (3.7)	5 (3.7)	7.5 (5.6)	15 (11)	50 (37)	40 (30)	50 (37)
Recirculation Air Fan Motor Rating, bhp (kW) ³	10 (7.5)	10 (7.5)	15 (11)	20 (15)	30 (22)	40 (30)	50 (37)	60 (45)	80 (60)
Unit Weight, lbs (kg) ⁴	6,269 (2,844)	7,828 (3,551)	12,207 (5,537)	14,245 (6,461)	16,904 (7,668)	20,541 (9,317)	25,623 (11,622)	32,187 (14,600)	38,037 (17,253)

¹ Scfm referenced to 70°F at 1 atmosphere (14.696 psia), Nm³/h referenced to 0°C at 1 atmosphere (0.9869 bar). The maximum process air flow cannot be heated to the corresponding maximum process air delivery temperature. See performance curves on page 3 for correlated air flow and temperature values.

² Assuming 230 - 460 VAC / 3 Phase / 60Hz electrical power. Please contact Eclipse for other electrical power options.

³ Size 8 unit uses two 30 HP (22 kW) motors. Size 9 unit uses two 40 HP (30 kW) motors.

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- All information is based on laboratory testing with neutral (0.0" w.c.) exhaust conditions.
- All inputs based upon gross calorific values and standard conditions: 1 atmosphere, 70°F (21°C).
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High Efficiency with Large Burner
(3/8" Spacing Heat Exchanger at 900°F Recirculation Temperature)

Parameter	ER Heater Size								
	1	2	3	4	5	6	7	8	9
Maximum Process Air Delivery Temp., °F (°C)	449 (232)	512 (267)	512 (267)	510 (266)	508 (264)	514 (268)	512 (267)	512 (267)	505 (263)
Maximum Process Air Flow Rate, scfm (Nm ³ /h) ¹	4,795 (7,562)	6,569 (10,360)	9,000 (14,194)	12,330 (19,446)	16,892 (26,641)	23,142 (36,498)	31,705 (50,003)	43,436 (68,504)	52,098 (82,165)
Maximum Process Air Pressure Drop, "w.c. (mbar)	4.5 (11.2)	4.2 (10.5)	4.3 (10.7)	4.8 (12.0)	5.2 (13.0)	5.7 (14.2)	6.3 (15.7)	6.2 (15.4)	6.1 (15.2)
Maximum Heat Transfer, MMBtu/h (kW)	1.4 (410)	2.2 (645)	3.1 (909)	4.2 (1,231)	5.7 (1,671)	7.9 (2,315)	10.7 (3,136)	14.7 (4,308)	17.1 (5,012)
Maximum Burner Firing Demand, MMBtu/h (kW)	1.7 (498)	2.5 (733)	3.5 (1,026)	4.7 (1,377)	6.5 (1,905)	8.9 (2,608)	12.2 (3,575)	16.7 (4,894)	19.5 (5,715)
Gas Pressure Requirement into Valve Train	5 psig (350 mbarg)								
Fuel Options	Natural Gas, Propane, Butane (Contact Eclipse for others.)								
Combustion Air Blower Motor Rating, bhp (kW) ²	5 (3.7)	5 (3.7)	7.5 (5.6)	7.5 (5.6)	15 (11)	50 (37)	40 (30)	50 (37)	60 (45)
Recirculation Air Fan Motor Rating, bhp (kW) ³	10 (7.5)	10 (7.5)	15 (11)	20 (15)	30 (22)	40 (30)	50 (37)	60 (45)	80 (60)
Unit Weight, lbs (kg) ⁴	6,269 (2,844)	7,828 (3,551)	12,207 (5,537)	14,245 (6,461)	16,904 (7,668)	20,541 (9,317)	25,623 (11,622)	32,187 (14,600)	38,037 (17,253)

¹ Scfm referenced to 70°F at 1 atmosphere (14.696 psia), Nm³/hr referenced to 0°C at 1 atmosphere (0.9869 bar). The maximum process air flow cannot be heated to the corresponding maximum process air delivery temperature. See performance curves on page 3 for correlated air flow and temperature values.

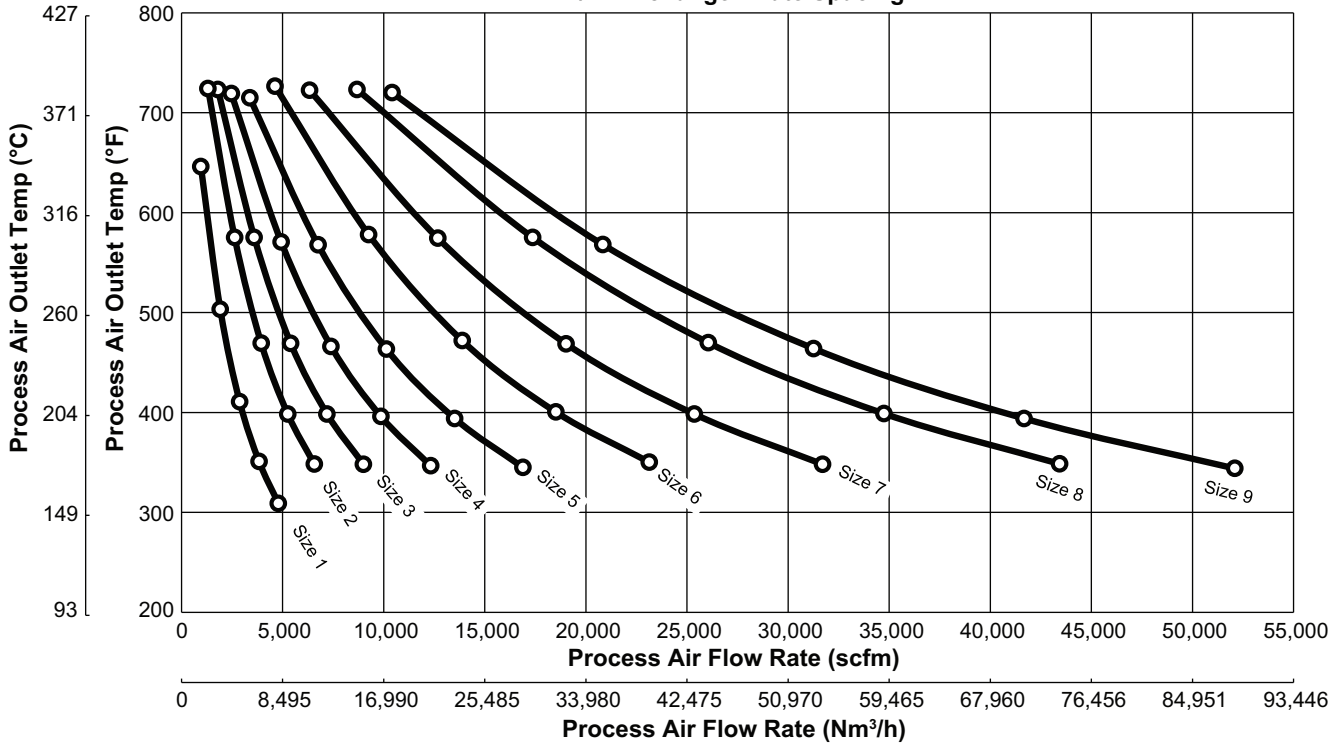
² Assuming 230 - 460 VAC / 3 Phase / 60Hz electrical power. Please contact Eclipse for other electrical power options.

³ Size 8 unit uses two 30 HP (22 kW) motors. Size 9 unit uses two 40 HP (30 kW) motors.

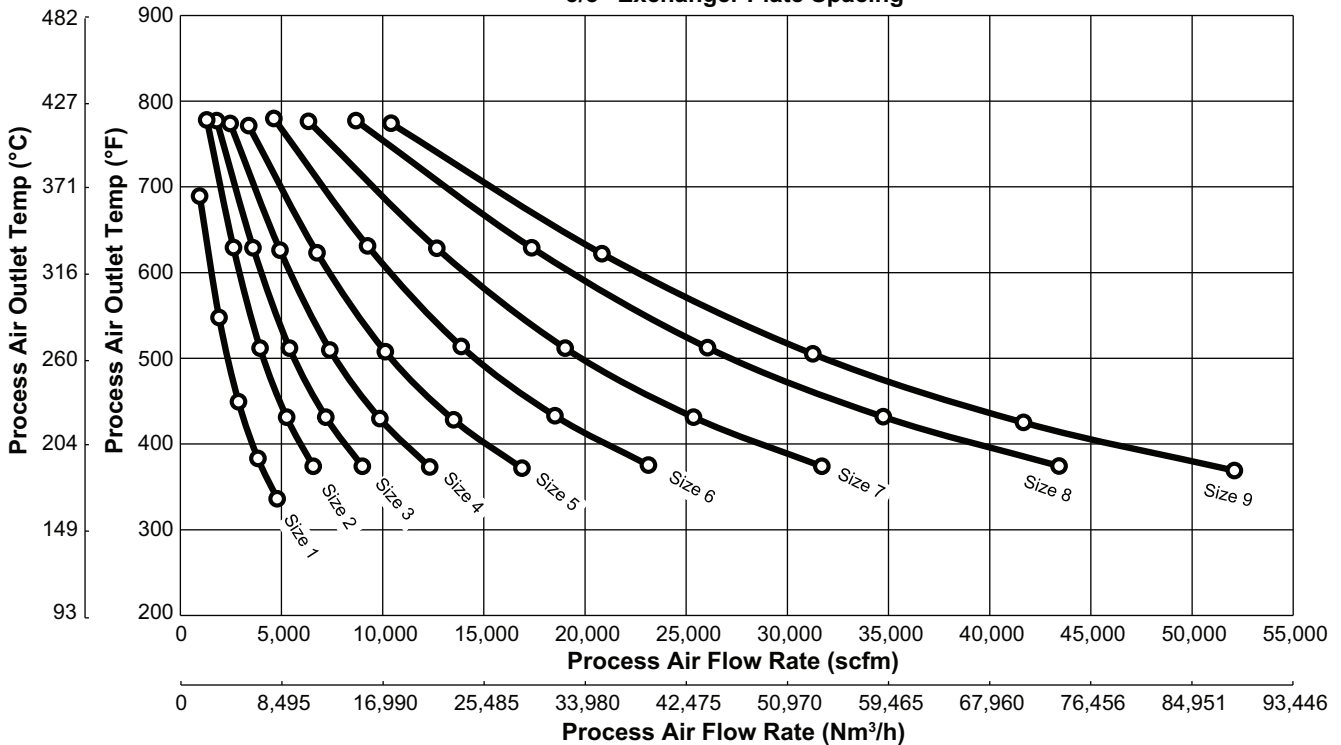
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- All information is based on laboratory testing with neutral (0.0" w.c.) exhaust conditions.
- All inputs based upon gross calorific values and standard conditions: 1 atmosphere, 70°F (21°C).
- Plumbing of gas will affect accuracy of orifice readings. All information based on general acceptable air and gas piping practices.
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- The performance curves below assume the following:
 - Fuel is natural gas
 - System elevation is at sea level
 - Process air enters ER Heater at 70°F (21°C), dry
 - Recirculation temperature is 900°F

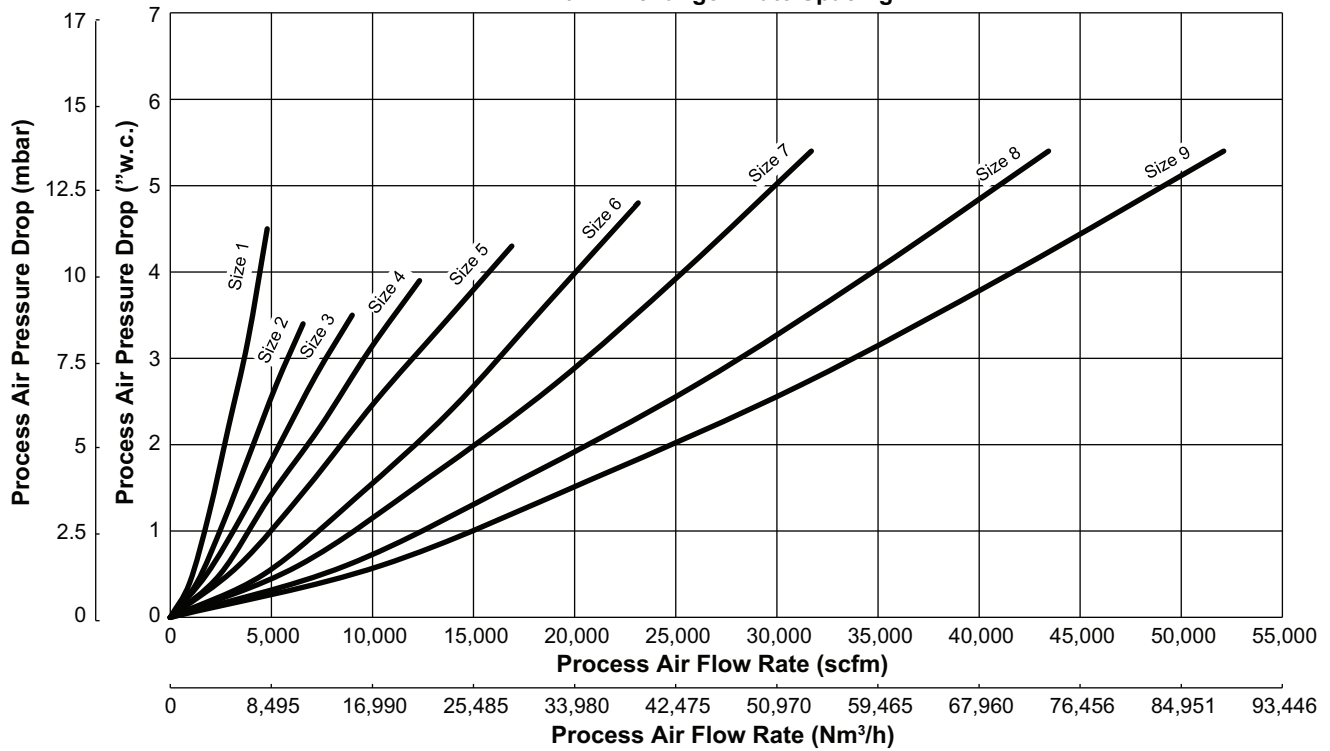
Process Air Outlet Temperature vs. Process Air Flow Rate
1/2" Exchanger Plate Spacing



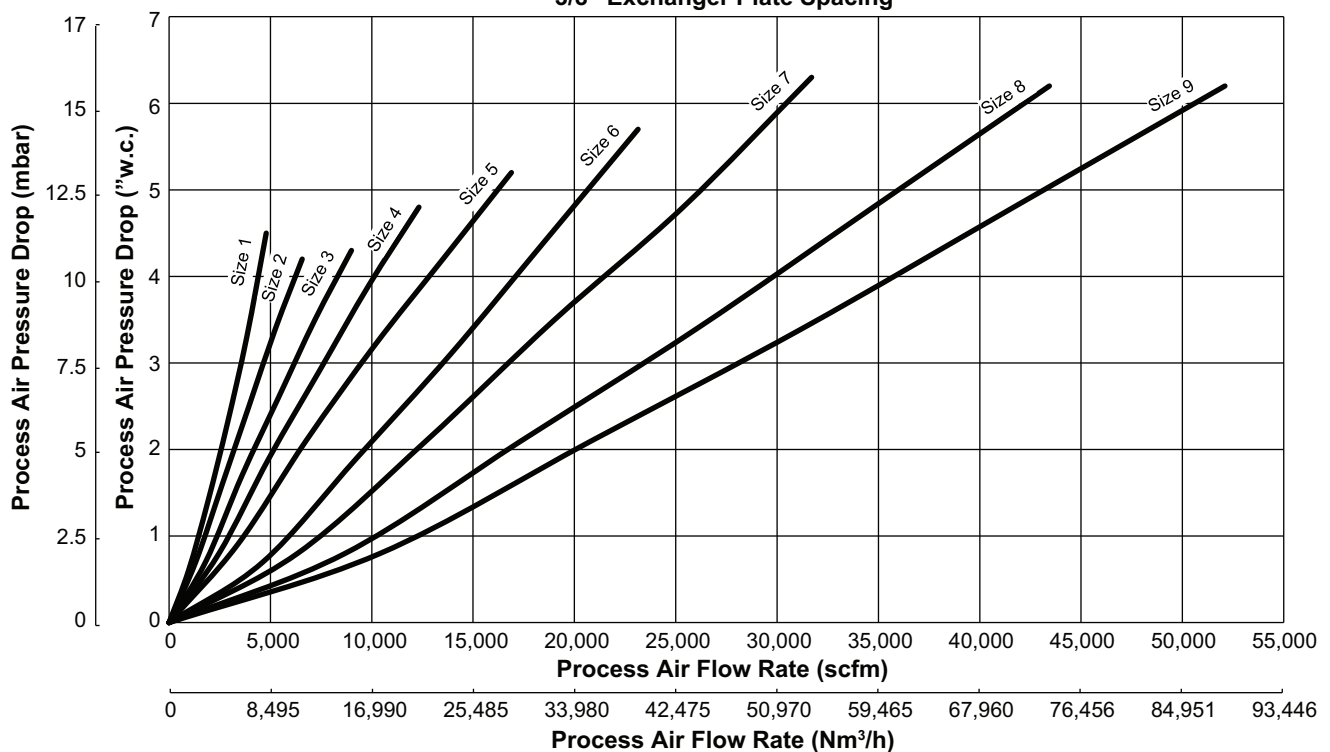
Process Air Outlet Temperature vs. Process Air Flow Rate
3/8" Exchanger Plate Spacing

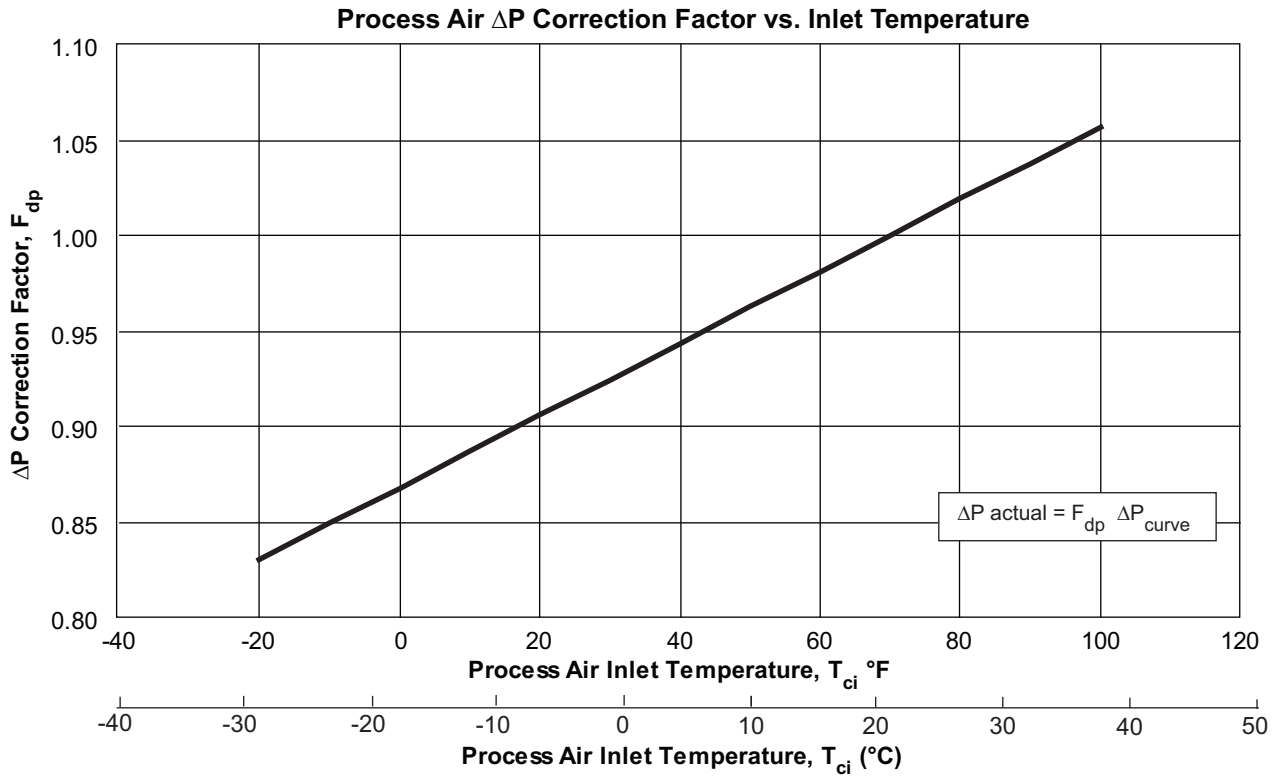
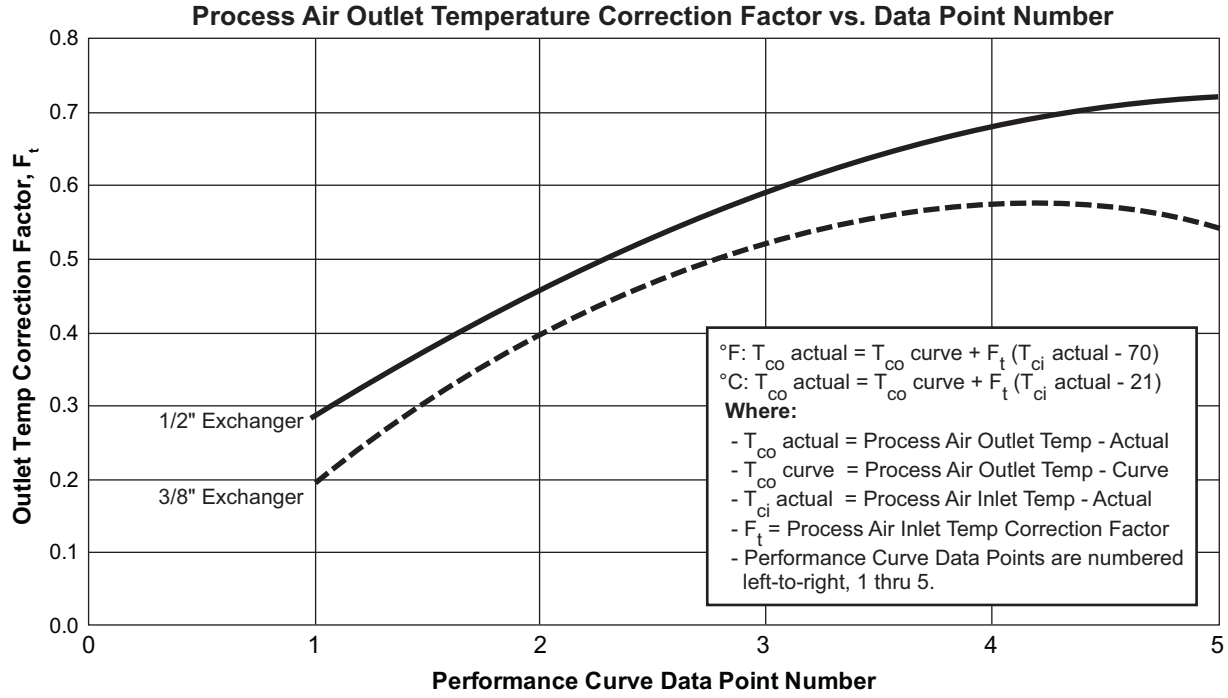


**Process Air Pressure Drop vs. Process Air Flow Rate
1/2" Exchanger Plate Spacing**

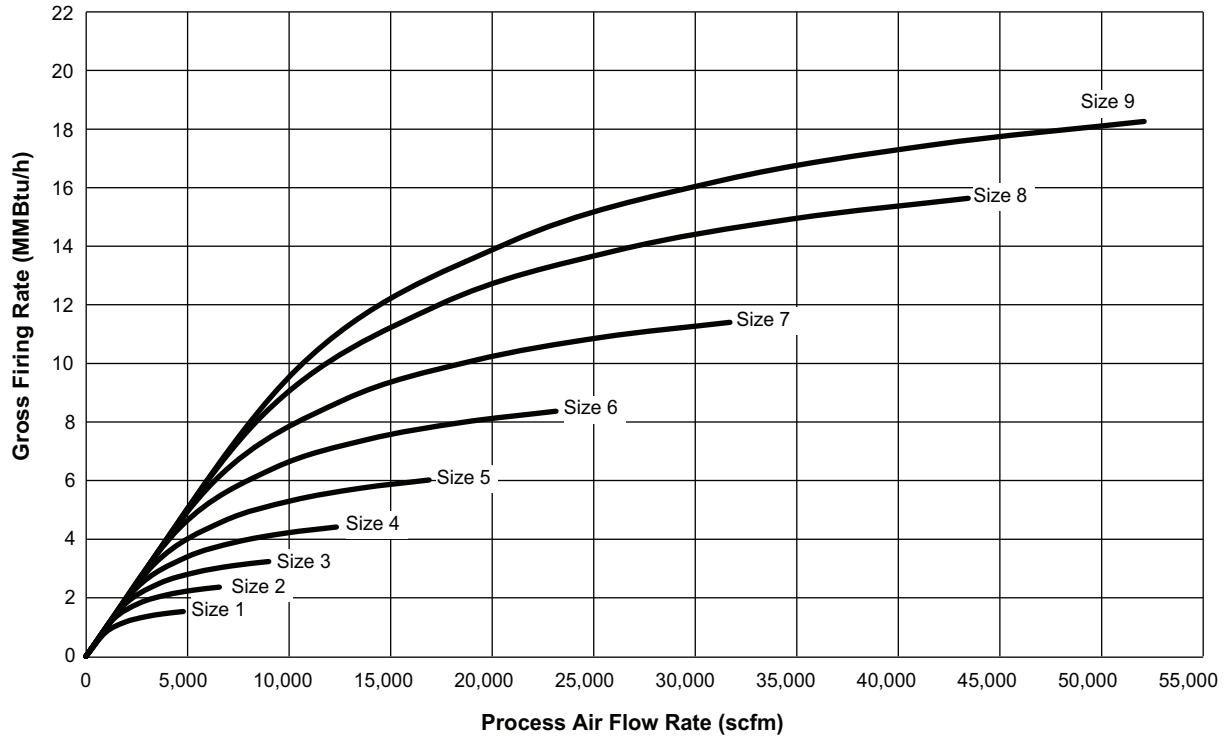


**Process Air Pressure Drop vs. Process Air Flow Rate
3/8" Exchanger Plate Spacing**

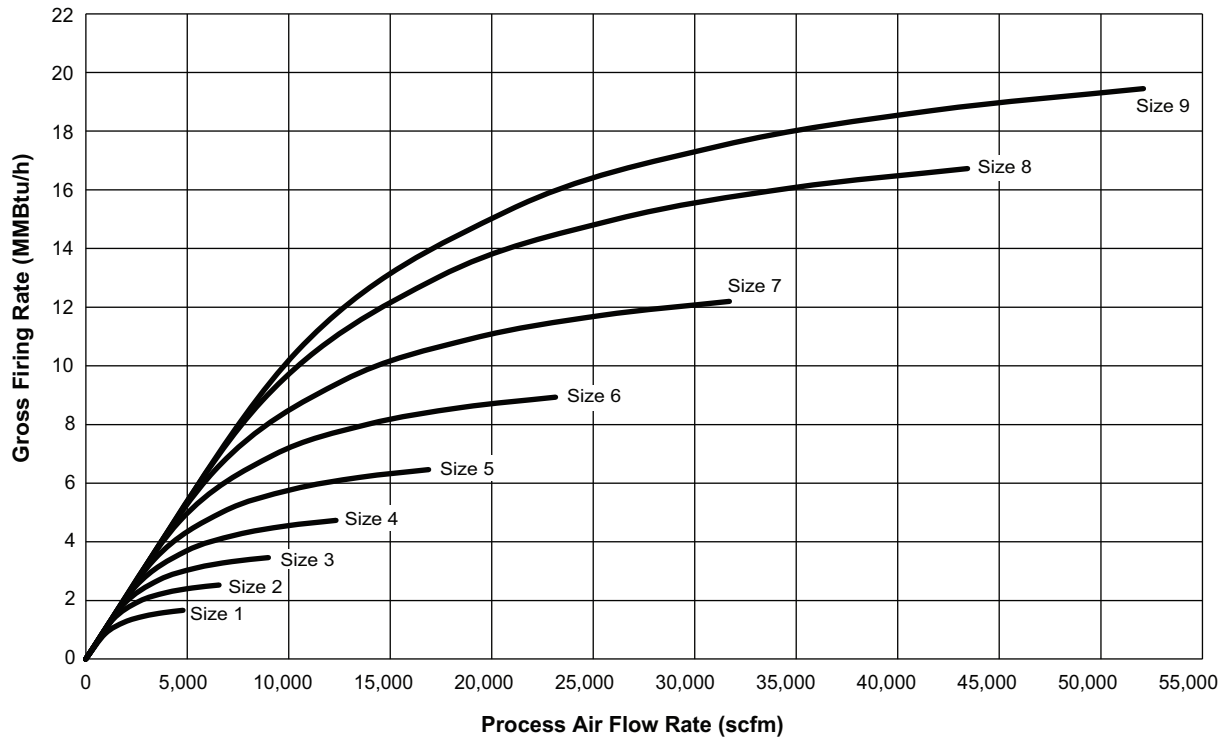




**Burner Firing Rate vs. Process Air Flow Rate
1/2" Exchanger Plate Spacing**



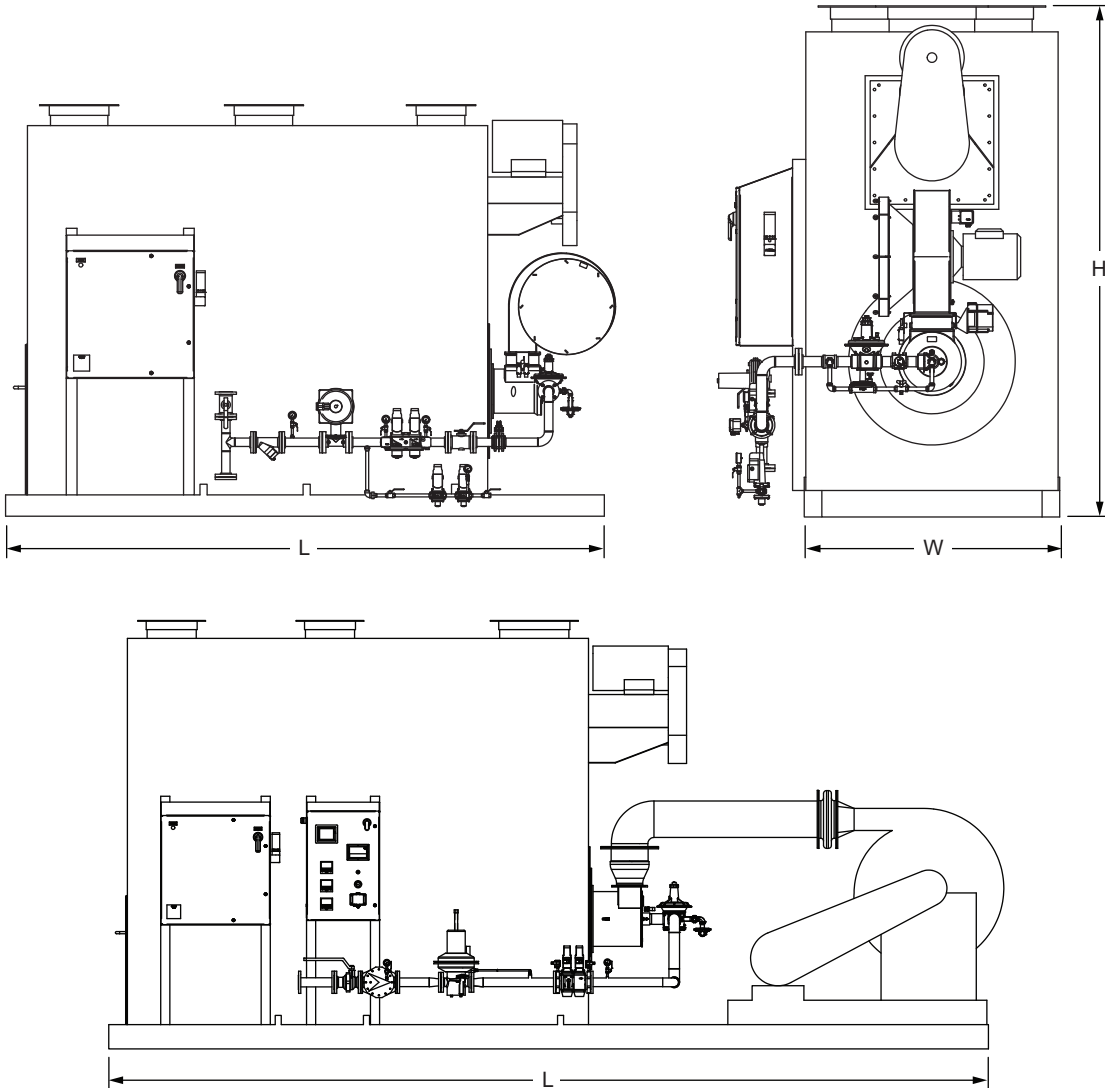
**Burner Firing Rate vs. Process Air Flow Rate
3/8" Exchanger Plate Spacing**



Burner Options									
ER Heater Size	1	2	3	4	5	6	7	8	9
Small Burner									
Maximum Demand, MMBtu/h	1.3	2.0	2.7	3.7	5.0	7.0	9.5	13.0	15.3
Maximum Demand, kW	381	586	791	1084	1465	2052	2784	3810	4484
Winnox Burner with Package Blower	WX0200	WX0300	WX0300	WX0500	WX0600	WX0850	N/A	N/A	N/A
Winnox Burner with External Blower	N/A	N/A	N/A	N/A	N/A	N/A	WX0850	N/A	N/A
Linnox Burner with External Blower	ULE 01-01-480	ULE 01-02-360	ULE 01-02-480	ULE 01-02-720	ULE 01-03-480	ULE-T 02-03-360	ULE-T 02-04-360	ULE-T 03-06-240	ULE-T 03-07-240
Minnox Burner with External Blower	500 CCS	625 CCS	875 CCS-T	1125 CCS-T	1500 CCS-T	2125 CCS-T	2875 CCS-T	3875 CCS-T	4500 CCS-T
Large Burner									
Maximum Demand, MMBtu/h	1.7	2.5	3.5	4.7	6.5	8.9	12.2	16.7	19.5
Maximum Demand, kW	498	733	1026	1377	1905	2608	3575	4894	5714
Winnox Burner with Package Blower	WX0200	WX0300	WX0400	WX0600	WX0850	N/A	N/A	N/A	N/A
Winnox Burner with External Blower	N/A	N/A	N/A	N/A	N/A	WX0850	N/A	N/A	N/A
Linnox Burner with External Blower	ULE 01-01-480	ULE 01-02-360	ULE 01-02-720	ULE 01-02-720	ULE-T 02-03-360	ULE-T 02-04-360	ULE-T 02-05-360	ULE-T 03-07-240	ULE-T 03-08-240
Minnox Burner with External Blower	500 CCS	750 CCS	1125 CCS-T	1375 CCS-T	1875 CCS-T	2625 CCS-T	3625 CCS-T	4875 CCS-T	5750 CCS-T

- All inputs in table above are based on gross calorific values and standard conditions: 1 atmosphere, 70F (21C)
- Burner selection based on 3/8" spacing heat exchanger, 900F recirculation temperature, 70% excess air.

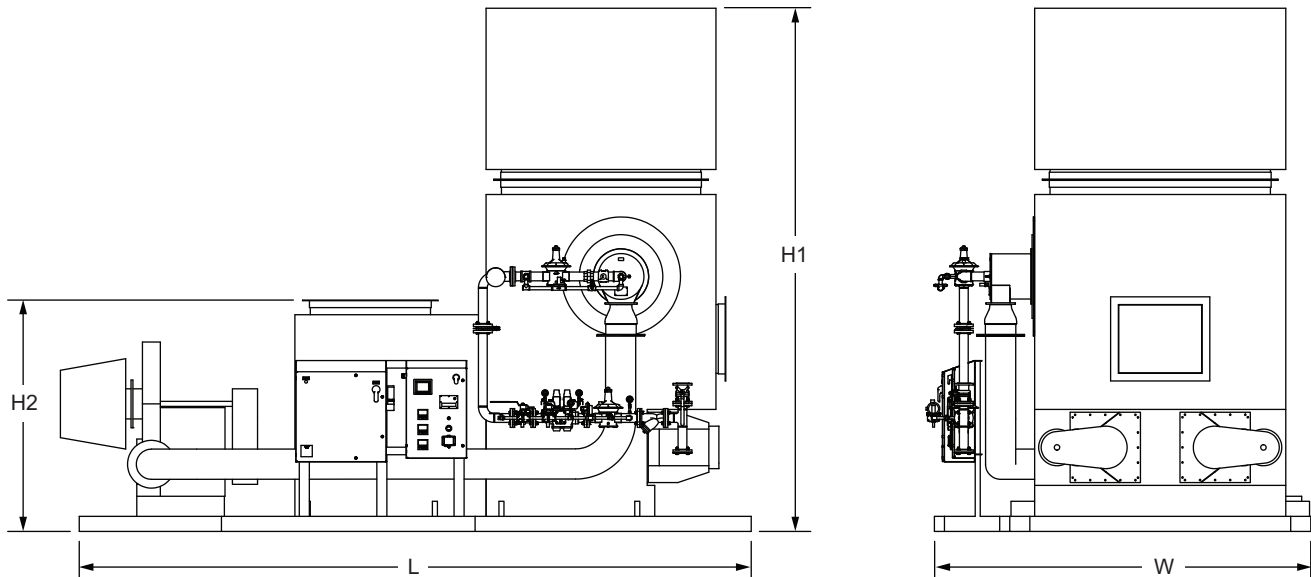
Dimensions
Horizontal Process Flow



Size	Height H, Inches (m)	Length L (Packaged Blower), Inches (m)	Length L (Remote Blower), Inches (m)	Width W, Inches (m)
1	97 (2.5)	121 (3.1)	178 (4.5)	47 (1.2)
2	108 (2.7)	151 (3.8)	214 (5.4)	51 (1.3)
3	108 (2.7)	158 (4.0)	214 (5.4)	55 (1.4)
4	116 (3.0)	172 (4.4)	229 (5.8)	58 (1.5)
5	120 (3.1)	190 (4.8)	234 (5.9)	70 (1.8)
6	135 (3.4)	182 (4.6)	238 (6.1)	82 (2.1)
7	141 (3.6)	N/A	270 (6.9)	101 (2.6)
8	141 (3.6)	N/A	275 (7.0)	134 (3.4)
9	141 (3.6)	N/A	275 (7.0)	158 (4.0)

• Dimensions represent a typical design configuration and are subject to change based on selected options.

Dimensions
Vertical Process Flow



Size	Height H1, Inches (m)	Height H2, Inches (m)	Length L (Heater/Blower Skid), Inches (m)	Length L (Heater Skid Only), Inches (m)	Width W, Inches (m)
1	145 (3.7)	67 (1.7)	217 (5.5)	155 (3.9)	41 (1.0)
2	160 (4.1)	91 (2.3)	232 (5.9)	170 (4.3)	50 (1.3)
3	170 (4.3)	91 (2.3)	232 (5.9)	170 (4.3)	59 (1.5)
4	179 (4.6)	92 (2.3)	241 (6.1)	175 (4.5)	70 (1.8)
5	186 (4.7)	92 (2.3)	249 (6.3)	182 (4.6)	82 (2.1)
6	198 (5.0)	92 (2.3)	260 (6.6)	194 (4.9)	98 (2.5)
7	209 (5.3)	92 (2.3)	282 (7.2)	201 (5.1)	120 (3.0)
8	203 (5.2)	92 (2.3)	282 (7.2)	201 (5.1)	149 (3.8)
9	203 (5.2)	92 (2.3)	282 (7.2)	201 (5.1)	173 (4.4)

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