

Maxon RADMAX[®] burners

TECHNICAL INFORMATION

- Durable, industrial-quality cast iron body construction with stainless steel emitter retainers
- Direct spark/flame sensing port for simple, reliable ignition and flame detection
- Easy emitter replacement — spring clip assembly requires no tools for removal
- Radiant face temperatures from 1050°F to 1650°F deliver uniform heat for a variety of processes
- Rapid heat up and cool down eliminates the need to rotate burner heads away from product
- Low profile design operates in horizontal or vertical applications to accommodate limited space applications
- No wire screens required to stabilize combustion on the burner face
- Low manifold pressures for normal operation: 4.5"–5" wc nominal (11.2–12.5 mbar)



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1 Application

RadMax Burners are designed to deliver uniform, high intensity radiant energy for moisture removal in textile and paper ovens, paint drying, and powder coating, as well as many pre-heat, plastic forming, heat treating and annealing operations. RadMax Burners can be used in ovens/chambers up to 500°F (260°C).

The benefits of RadMax Burners include the ability to economically increase the production rates. They reduce re-work and defects caused by improper or uneven heating or drying. And they reduce down time and maintenance costs when the need for service or repair arises.



RadMax burner type 50 (side-to-side)

RadMax Burners are full premix fuel/air and will operate on both natural and propane gas. Manifold mixture pressures at the burner range from 1" – 6" wc (2.5 – 15 mbar).

The three-Emitter burner heads have a nominal heat input of 25,000 Btu/hr (7.3 kW).

Most systems are designed to nominal capacities. Reduced or extended capacities are possible. Contact Maxon for more information.

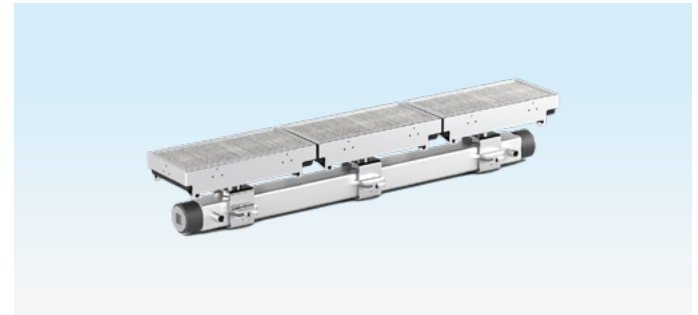
Normal operating face temperatures range from 1050°F – 1650°F (565°C – 900°C).

Burner heads are cast iron bodies with stainless steel emitter retainers.

Burner emitters are fiber mat with superb radiation efficiency. RadMax Burner heads have a quick connect feature to remove and replace individual burner heads without removing the whole manifold assembly from the oven.

Emitters in the burner heads are held in place by spring clip retainer frames. There are no bolts or nuts to be removed if an emitter needs to be replaced.

Type 25 and Type 50 utilize the same burner heads. Type 13 and type 25 are assembled end-to-end; Type 50 are assembled side-to-side.



RadMax burner type 13/type 25 (end-to-end)

1 Application

Manifolds can be arranged to allow for multi-width/multi-length operation of burner sections.

Metal foam emitters can be replaced by metal fiber emitters in existing burner assemblies.

Metal fiber emitters may not be appropriate for certain down fired applications. Please contact sales engineering to verify their use in your application.

2 Certification

2.1 Eurasian Customs Union

The logo for the Eurasian Customs Union (EAC) is displayed in a bold, black, sans-serif font. The letters 'E', 'A', and 'C' are stacked vertically, with the 'A' being significantly larger than the 'E' and 'C'. The logo is centered within a light gray rectangular background.

The products RadMax meet the technical specifications of the Eurasian Customs Union.

3 Selection

3.1 Selection table

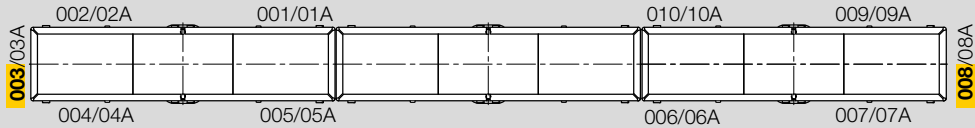
Description	Code	Number of burner heads				Condition
		2	3-10	11-15	16-26	
Configured item number						
Number of burner heads	2-10	2	3, 4, 5, 6, 7, 8, 9, 10	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26	The number of possible heads depends on the burner type
RadMax burner type	13RM 25RM 50RM	13RM	13RM, 25RM, 50RM	25RM, 50RM	50RM	
Burner height						
Extended height to match PSR2	EXT	•	•	•	•	Box distance above manifold
Standard height	STD	•	•	•	•	Box distance above manifold
Box type						
Emitter box	MF	•	•	•	•	Machining options
Manifold type						
Back inlet feed	BI	•	•	•	•	Inlet connection location
End feed	EF	•	•	•	•	Inlet connection location
Direct spark, flame sensing, Choice 1						
NO SIR Spk/Fim sensing choice	000	•	•	•	•	
Position 1-10 DS SPK/FR Port	001-010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008	Location of direct spark/flame sensing port - see drawing below
Position 1A-10A FR only w/18117	01A-10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A	"A" positions refer to the flame rod only

3 Selection

Description	Code	Number of burner heads				Condition
		2	3-10	11-15	16-26	
Direct spark, flame sensing, Choice 2						
NO SIR Spk/Flm sensing choice	000	•	•	•	•	
Position 1-10 DS SPK/FR Port	001-010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008	Location of direct spark/flame sensing port - see drawing below
Position 1A-10A FR only w/18117	01A-10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A	"A" positions refer to the flame rod only
Direct spark, flame sensing, Choice 3						
NO SIR Spk/Flm sensing choice	000	•	■	•	•	
Position 1-10 DS SPK/FR Port	001-010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008	Location of direct spark/flame sensing port - see drawing below
Position 1A-10A FR only w/18117	01A-10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A, 09A, 10A	01A, 02A, 03A, 04A, 05A, 06A, 07A, 08A	"A" positions refer to the flame rod only
Direct spark, flame sensing, Choice 4						
NO SIR Spk/Flm sensing choice	000	•	■	•	•	
Position 1-10 DS SPK/FR Port	001-010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008	Location of direct spark/flame sensing port - see drawing below
Position 1A-10A FR only w/18117	01A-10A	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008, 009, 010	001, 002, 003, 004, 005, 006, 007, 008	"A" positions refer to the flame rod only

3 Selection

Description	Code	Number of burner heads				Condition
		2	3-10	11-15	16-26	
Assembly Instructions						
Burner heads loose	A	•	•	•	•	Level of burner assembly prior to shipment
Completely assembled	B	•	•	•	•	Completely burner assembly to 2-1013RM, 3-1525RM, 3-2650RM
Flame sensors loose	C	•	•	•	•	Completely burner assembly to 2-1013RM, 3-1525RM, 3-2650RM
Heads and sensors loose	D	•	•	•	•	Level of burner assembly prior to shipment
Include U-Bolts						
Do not include U-Bolts	0	•	•	•	•	Burner assembly mounting hardware
Include U-Bolts	1	•	•	•	•	Burner assembly mounting hardware



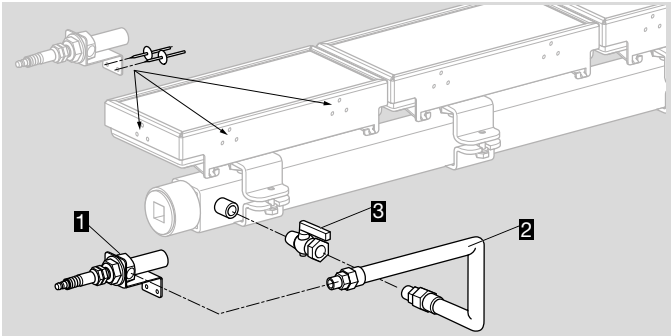
Order example

313RMSTDMFEF003008000000B1

3.2 Burner head assemblies

Type	Description	Assembly number
13RM	Burner head assembly - metal fiber standard height	1071708
13RM	Burner head assembly - metal fiber extended height	1071709
25RM, 50RM	Burner head assembly - metal fiber standard height	50122918-001
25RM, 50RM	Burner head assembly - metal fiber extended height	50122919-001

4 Accessories



- 1** Direct spark/flame sensing port (DS/FS)
- 2** CSST corrugated tubing 1/4" I.D. x 18" long
- 3** Valve for DS/FS port

5 Spare parts

The PartDetective web app for selecting spare parts is available at www.adlatus.org.

6 Technical data

6.1 Type 13RM (end-to-end) – imperial

Type	Inlet size	Number of burner heads	Nominal capacity (Btu/hr)	Face width (inches)	Manifold size (inches)
213RM	1-1/2"	2	50,000	31.62	2 x 2
313RM	1-1/2"	3	75,000	47.46	2 x 2
413RM	1-1/2"	4	100,000	63.31	2 x 2
513RM	1-1/2"	5	125,000	79.15	2 x 2
613RM	1-1/2"	6	150,000	94.99	2 x 2
713RM	1-1/2"	7	175,000	110.84	2 x 2
813RM	1-1/2"	8	200,000	126.68	2 x 2
913RM	2"	9	225,000	142.53	2 x 3
1013RM	2"	10	250,000	158.37	2 x 3

6.2 Type 25RM (end-to-end) – imperial

Type	Inlet size	Number of burner heads	Nominal capacity (Btu/hr)	Face width (inches)	Manifold size (inches)
325RM	1-1/2"	3	75,000	33.57	2 x 2
425RM	1-1/2"	4	100,000	44.82	2 x 2
525RM	1-1/2"	5	125,000	56.07	2 x 2
625RM	1-1/2"	6	150,000	67.32	2 x 2
725RM	1-1/2"	7	175,000	78.57	2 x 2
825RM	1-1/2"	8	200,000	89.82	2 x 2
925RM	2"	9	225,000	101.07	2 x 3
1025RM	2"	10	250,000	112.32	2 x 3
1125RM	2"	11	275,000	123.57	2 x 3
1225RM	2"	12	300,000	134.82	2 x 3
1325RM	2"	13	325,000	146.07	2 x 3
1425RM	2-1/2"	14	350,000	157.32	2 x 4
1525RM	2-1/2"	15	375,000	168.57	2 x 4

6.3 Type 50 (side-to-side) – imperial

Type	Inlet size	Number of burner heads	Nominal capacity (Btu/hr)	Face width (inches)	Manifold size (inches)
350RM	1-1/2"	3	75,000	16.45	2 x 2
450RM	1-1/2"	4	100,000	21.98	2 x 2
550RM	1-1/2"	5	125,000	27.52	2 x 2
650RM	1-1/2"	6	150,000	33.05	2 x 2
750RM	1-1/2"	7	175,000	38.58	2 x 2
850RM	1-1/2"	8	200,000	44.11	2 x 2
950RM	2"	9	225,000	49.64	2 x 3
1050RM	2"	10	250,000	55.17	2 x 3
1150RM	2"	11	275,000	60.70	2 x 3
1250RM	2"	12	300,000	66.23	2 x 3
1350RM	2"	13	325,000	71.77	2 x 3
1450RM	2-1/2"	14	350,000	77.30	2 x 4
1550RM	2-1/2"	15	375,000	82.83	2 x 4
1650RM	2-1/2"	16	400,000	88.36	2 x 4
1750RM	2-1/2"	17	425,000	93.89	2 x 4
1850RM	2-1/2"	18	450,000	99.42	2 x 4
1950RM	3"1)	19	475,000	104.95	2 x 5
2050RM	3"1)	20	500,000	110.48	2 x 5
2150RM	3"1)	21	525,000	116.02	2 x 5
2250RM	3"1)	22	550,000	121.55	2 x 5
2350RM	3"1)	23	575,000	127.08	2 x 5
2450RM	3"1)	24	600,000	132.61	2 x 5
2550RM	3"1)	25	625,000	138.14	2 x 5
2650RM	3"1)	26	650,000	143.67	2 x 5

1) Maximum inlet size for bottom inlet is 2-1/2" NPT.

6.4 Burner head (Type 13/25/50) – imperial

Manifold pressure	"w.c.	2	3	4	4.5 (nominal)	5	6
Combustion air flow	SCFH	205	252	291	308	326	357
Maximum capacity	Btu/hr	17,800	20,700	23,500	24,925	26,200	28,500
Fuel flow at maximum	SCFH	17.8	20.7	23.5	24.9	26.2	28.5
Minimum capacity	Btu/hr	10,800	14,100	16,600	18,000	19,300	21,700
Fuel flow at minimum	SCFH	10.8	14.1	16.6	18.0	19.3	21.7
Face temperature range	°F	1168–1454	1110–1537	1130–1569	1137–1630	1173–1611	1166–1677

6.5 Burner head (Type 13/25/50) – metric

Manifold pressure	mbar	5	7.5	10	11.2 (nominal)	12.4	14.9
Combustion air flow	m ³ /h	5.80	7.15	8.25	8.72	9.23	10.12
Maximum capacity	kW	5.2	6.1	6.9	7.3	7.7	8.4
Fuel flow at maximum	m ³ /h	0.50	0.59	0.67	0.71	0.74	0.81
Minimum capacity	kW	3.2	4.1	4.9	5.3	5.7	6.4
Fuel flow at minimum	m ³ /h	0.311	0.40	0.47	0.51	0.55	0.61
Face temperature range	°C	631-790	599-836	610-854	614-888	634-877	630-914

6.6 Direct spark/Flame sensor port – imperial

Manifold pressure	"w.c.	2	3	4	4.5 (nominal)	5	6
Combustion air flow	SCFH	66	77	87	93	97	106
Maximum capacity	Btu/hr	5,340	6,210	7,050	7,478	7,860	8,550
Fuel flow at maximum	SCFH	5.3	6.2	7.1	7.5	7.9	8.6

6.7 Direct spark/Flame sensor port – metric

Manifold pressure	mbar	5	7.5	10	11.2 (nominal)	12.4	14.9
Combustion air flow	m ³ /h	1.88	2.18	2.48	2.63	2.76	3.00
Maximum capacity	kW	1.6	1.8	2.1	2.2	2.3	2.5
Fuel flow at maximum	m ³ /h	0.15	0.18	0.20	0.21	0.22	0.24

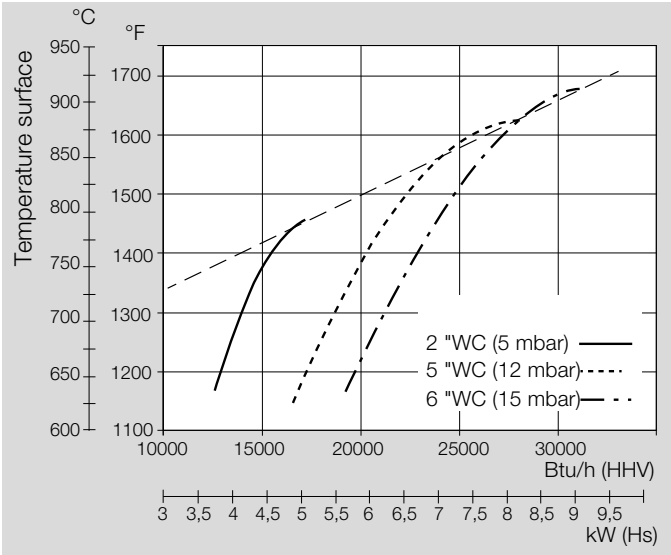
6.8 Approximate shipping weight - imperial

Type	13RM	25RM	50RM
Burner head weight [lbs]	9.1	8.8	8.8
Manifold weight per head [lbs]			
2 x 2" manifold	5.7	4.1	2.0
2 x 3" manifold	7.4	5.2	2.6
2 x 4" manifold	9.1	6.4	3.2
2 x 5" manifold	10.8	7.6	3.8

6.9 Emitter surface temperature

Most systems are designed to nominal capacities.

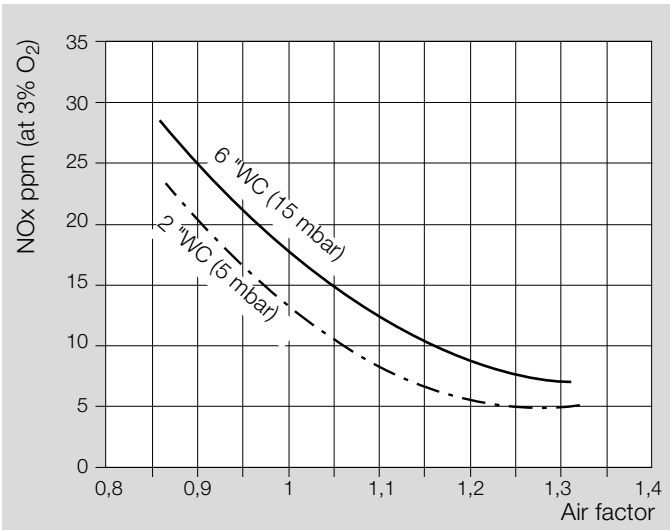
- » Reduced or extended capacities are possible. RadMax should not be installed in ovens/chambers above 500°F. Contact Maxon for more information.



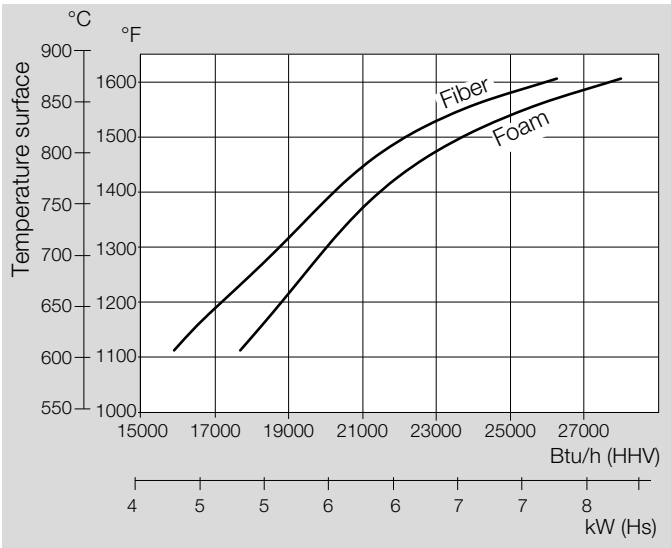
1) RadMax utilized metal foam emitters prior to 2022.

6.10 NOx Emission

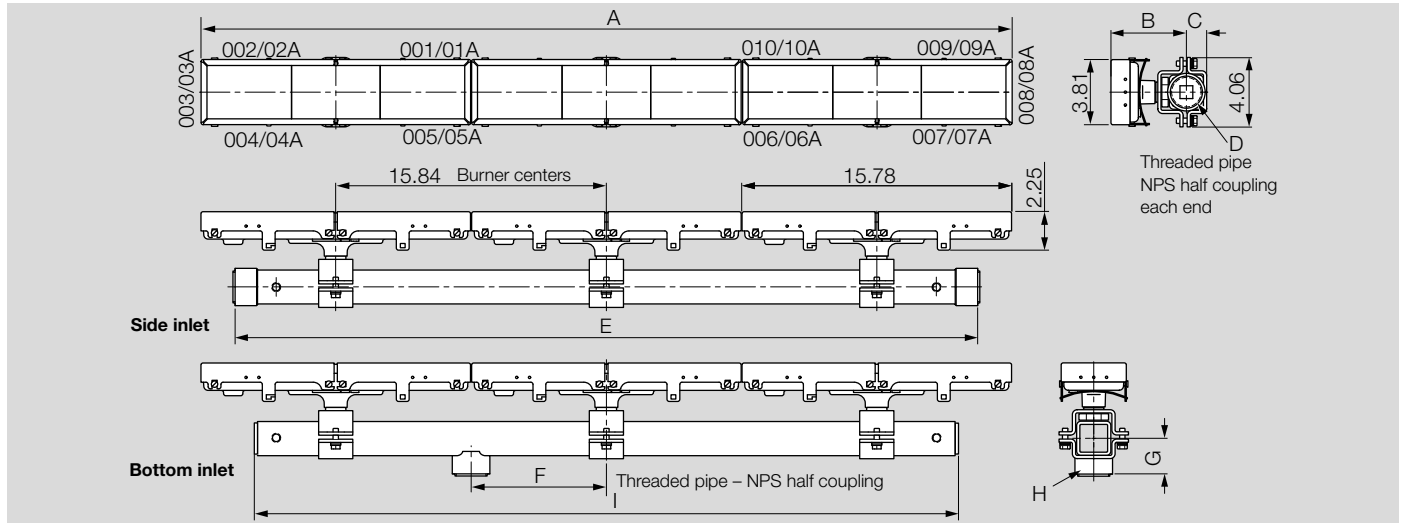
This chart represents the relationship between NOx emissions and face temperature versus percent of excess air. Actual readings may vary according to operating conditions.



6.11 Metal fiber (current) vs. metal foam performance

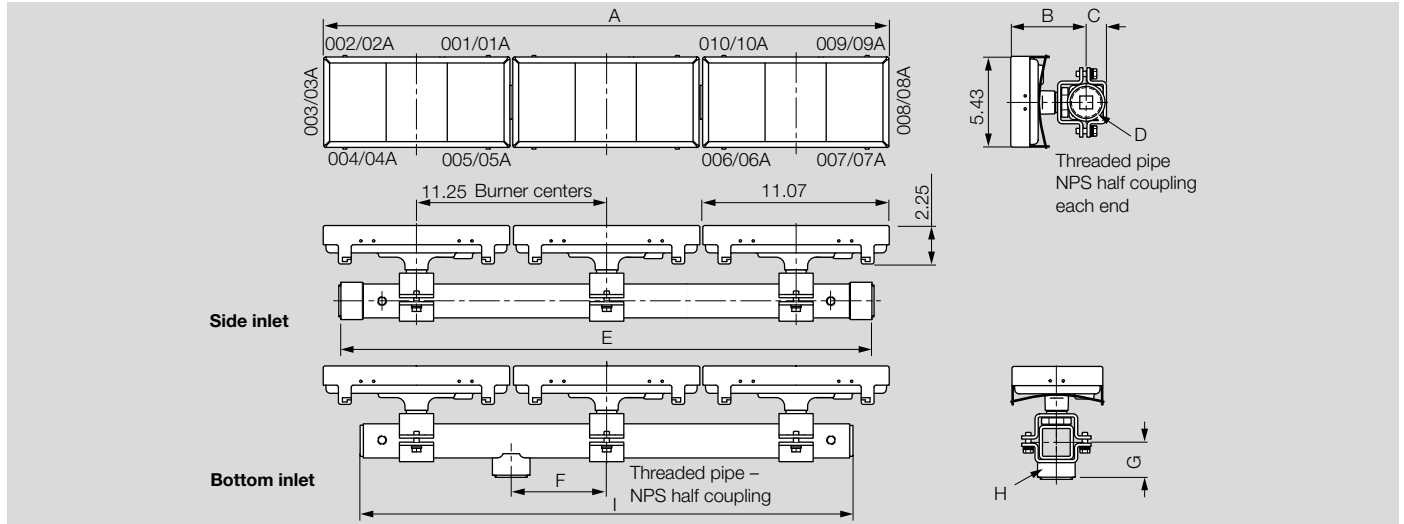


6.12 Dimensions Type 13 RadMax burner



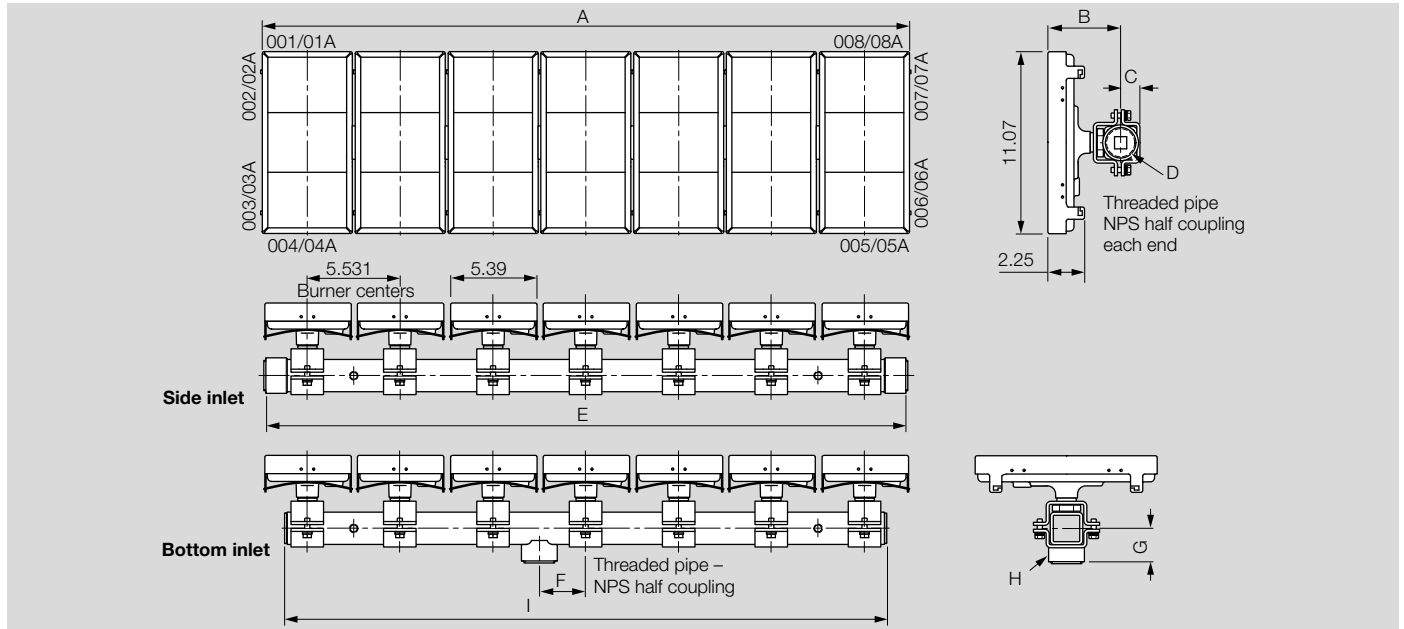
Burner size	A	B		C	D	E	F	G	H	I
		Standard	Extended length				Bottom inlet only	Bottom inlet only	# of inlets (bottom inlet)	
2-13	31.62	4.42	5.42	1.19	1-1/2" NPT	27.63	0.00	2.06	1	25.38
3-13	47.46	4.42	5.42	1.19	1-1/2" NPT	43.47	7.92	2.06	1	41.22
4-13	63.31	4.42	5.42	1.19	1-1/2" NPT	59.31	0.00	2.06	1	57.06
5-13	79.15	4.42	5.42	1.19	1-1/2" NPT	75.16	7.92	2.06	1	72.91
6-13	94.99	4.42	5.42	1.19	1-1/2" NPT	91.00	15.84	2.06	2	88.75
7-13	110.84	4.42	5.42	1.19	1-1/2" NPT	106.84	23.77	2.06	2	104.59
8-13	126.68	4.42	5.42	1.19	1-1/2" NPT	122.69	31.69	2.06	2	120.44
9-13	142.53	4.92	5.92	1.69	2" NPT	138.66	39.61	2.62	2	136.28
10-13	158.37	4.92	5.92	1.69	2" NPT	154.50	47.53	2.62	2	152.13

6.13 Type 25 RadMax burner



Burner size	A		B		C		D		E		F		G		H		I
	Standard	Extended length	Standard	Extended length	Standard	Extended length	Standard	Extended length	Standard	Extended length	Bottom inlet only	Bottom inlet only	Bottom inlet only	# of inlets (bottom inlet)			
3-25	33.57	4.42	5.42	1.19	1-1/2" NPT	31.50	5.63	2.06	1	29.25							
4-25	44.82	4.42	5.42	1.19	1-1/2" NPT	42.75	0.00	2.06	1	40.50							
5-25	56.07	4.42	5.42	1.19	1-1/2" NPT	54.00	5.63	2.06	1	51.75							
6-25	67.32	4.42	5.42	1.19	1-1/2" NPT	65.25	0.00	2.06	1	63.00							
7-25	78.57	4.42	5.42	1.19	1-1/2" NPT	76.50	16.88	2.06	2	74.25							
8-25	89.82	4.42	5.42	1.19	1-1/2" NPT	87.75	22.50	2.06	2	85.50							
9-25	101.07	4.92	5.92	1.69	1-1/2" NPT	99.13	28.13	2.62	2	96.75							
10-25	112.32	4.92	5.92	1.69	2" NPT	110.38	22.50	2.62	2	108.00							
11-25	123.57	4.92	5.92	1.69	2" NPT	121.63	28.13	2.62	2	119.25							
12-25	134.82	4.92	5.92	1.69	2" NPT	132.88	33.75	2.62	2	130.50							
13-25	146.07	4.92	5.92	1.69	2" NPT	144.13	39.38	2.62	2	141.75							
14-25	157.32	5.42	6.42	2.19	2-1/2" NPT	158.63	33.75	3.75	2	153.00							
15-25	168.57	5.42	6.42	2.19	2-1/2" NPT	169.88	39.38	3.75	2	164.25							

6.14 Type 50 RadMax burner



Burner size	A		B		C	D	E	F	G	H	I
	Standard	Extended length	Standard	Extended length							
3-50	16.45	4.42	5.42	1.19	1-1/2" NPT	16.13	2.77	2.06	1	13.88	
4-50	21.98	4.42	5.42	1.19	1-1/2" NPT	21.66	0.00	2.06	1	19.41	
5-50	27.52	4.42	5.42	1.19	1-1/2" NPT	27.19	2.77	2.06	1	24.94	
6-25	33.05	4.42	5.42	1.19	1-1/2" NPT	32.72	0.00	2.06	1	30.47	
7-50	38.58	4.42	5.42	1.19	1-1/2" NPT	38.25	2.77	2.06	1	36.00	
8-50	44.11	4.42	5.42	1.19	1-1/2" NPT	43.78	0.00	2.06	1	41.53	
9-50	49.64	4.92	5.92	1.69	1-1/2" NPT	49.44	2.77	2.62	1	47.06	
10-50	55.17	4.92	5.92	1.69	2" NPT	54.97	0.00	2.62	1	52.59	
11-50	60.70	4.92	5.92	1.69	2" NPT	60.50	2.77	2.62	1	58.13	
12-50	66.23	4.92	5.92	1.69	2" NPT	66.03	16.59	2.62	2	63.66	

6 Technical data

Burner size	A	B		C	D	E	F	G	H	I
		Standard	Extended length				Bottom inlet only	Bottom inlet only	# of inlets (bottom inlet)	
13-50	71.77	4.92	5.92	1.69	2" NPT	71.56	19.36	2.62	2	69.19
14-50	77.30	5.42	6.42	2.19	2-1/2" NPT	80.34	16.59	3.75	2	74.72
15-50	82.83	5.42	6.42	2.19	2-1/2" NPT	85.88	19.36	3.75	2	80.25
16-50	88.36	5.42	6.42	2.19	2-1/2" NPT	91.41	22.12	3.75	2	85.78
17-50	93.89	5.42	6.42	2.19	2-1/2" NPT	96.94	24.89	3.75	2	91.31
18-50	99.42	5.42	6.42	2.19	2-1/2" NPT	102.47	27.66	3.75	2	96.84
19-50	104.95	5.92	6.92	2.69	3" NPT	110.13	24.89	3.75	2	106.38
20-50	110.48	5.92	6.92	2.69	3" NPT	115.66	27.66	3.75	2	111.91
21-50	116.02	5.92	6.92	2.69	3" NPT	121.19	30.42	3.75	2	117.44
22-50	121.55	5.92	6.92	2.69	3" NPT	126.72	33.19	3.75	2	122.97
23-50	127.08	5.92	6.92	2.69	3" NPT	132.25	30.42	3.75	2	128.50
24-50	132.61	5.92	6.92	2.69	3" NPT	137.78	33.19	3.75	2	134.03
25-50	138.14	5.92	6.92	2.69	3" NPT	143.31	35.95	3.75	2	139.56
26-50	143.67	5.92	6.92	2.69	3" NPT	148.84	33.19	3.75	2	145.09

7 Converting units

See www.adlatus.org

For more information

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschroder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.

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