Infrared Lamps

A Complete Catalogue

2015

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INDUSTRIAL INFRARED LAMPS

Short-wave

~780 to 1,400 nm
Max. coil surface temperature, 2,500ºC

Twin ▸ Page 5

Ring ▸ Page 17

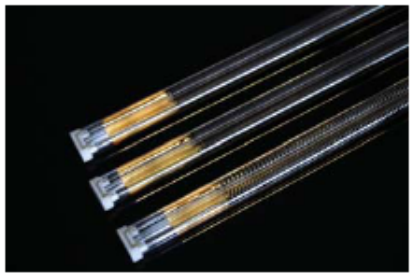
Contour, 3-D ▸ Page 23

Including straight singles

Medium-wave

~1,401 to 3,000 nm
Max. coil surface temperature, 1,100ºC

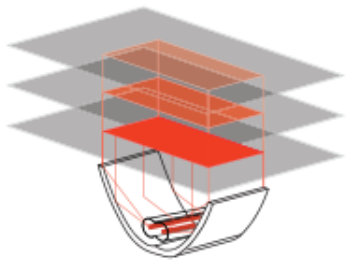
Twin ▸ Page 13



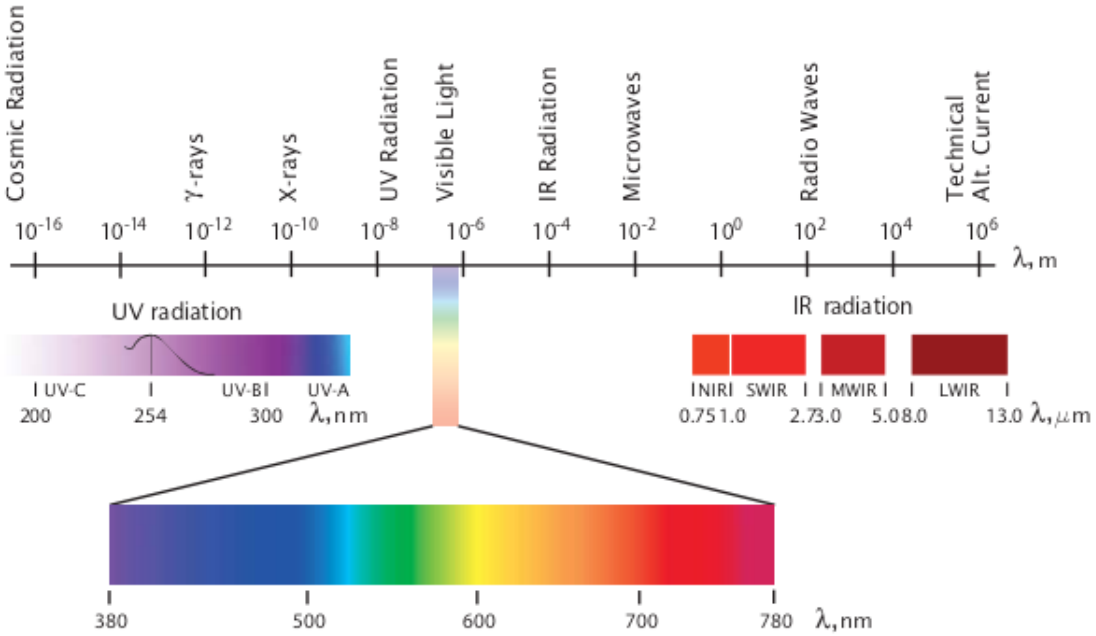
Twin Carbon ▸ Page 16

Reflectors for the Twin

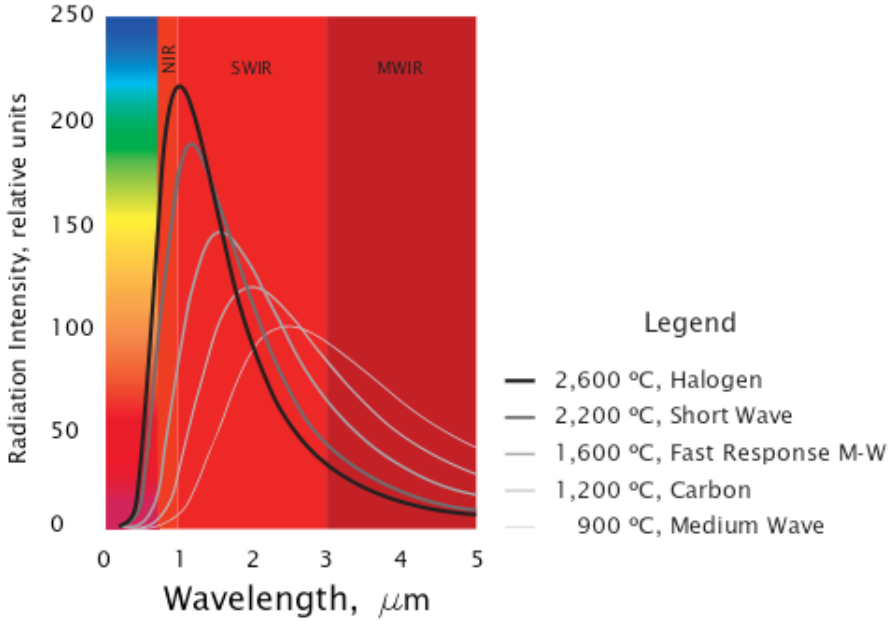
▸ Page 29



ELECTROMAGNETIC SPECTRUM *ES*



IR LAMPS IN THE *ES*



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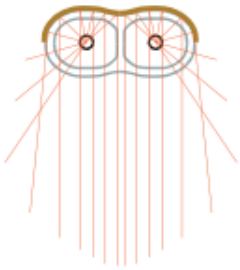
Short-Wave Twin Tube Infrared Lamps

CONTENTS

TWIN TUBE SHORT-WAVE IR LAMPS

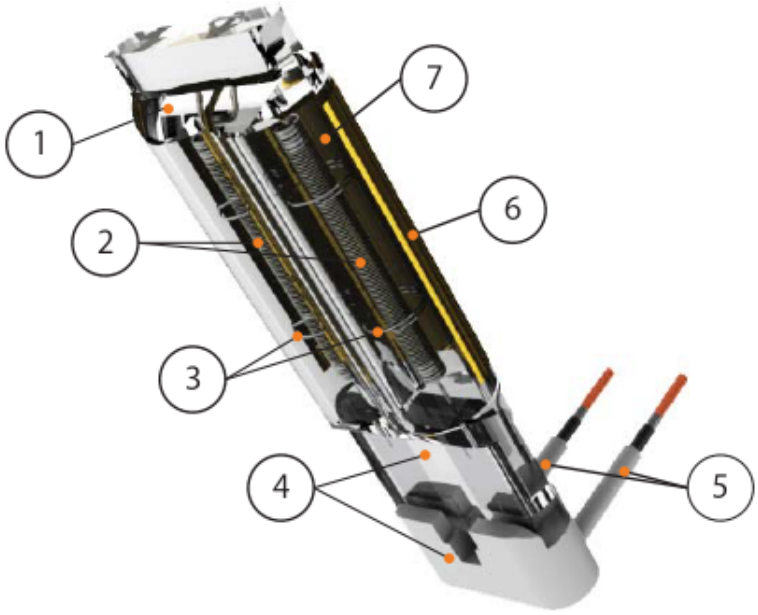
The most powerful
yet precise
non-contact electric
heating products
in industry



SELECTED INFRARED HEATING APPLICATIONS

- Automotive Industry
- Food Industry Browning
- Glass Industry Screen Printing
- Plastics Industry Thermoforming, PET bottles, Welding of Plastics
- Semiconductor Industry
- Textile Industry
- Ultrapure Water Processing
- Wood Industry

TWIN TUBE SHORT-WAVE IR LAMPS



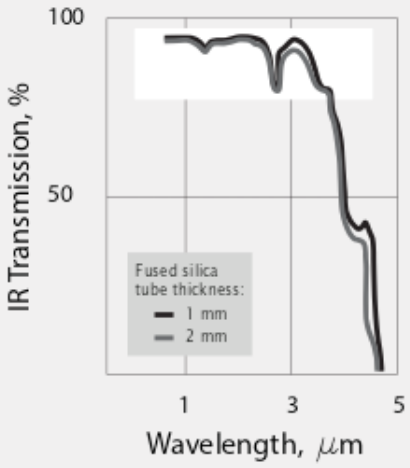
Main components of a twin tube infrared lamp:

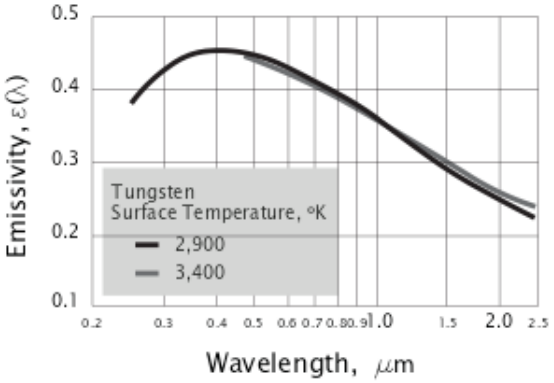
1. Fused silica
2. Tungsten heating elements
3. Supports for heating wire
4. End plate and ceramic end
5. Wire leads
6. Reflective layer. Shown: gold layer
7. Proprietary gas composition.

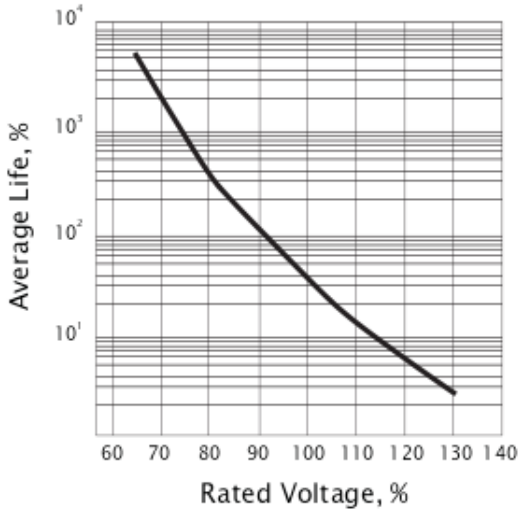
Fused Silica *also known as Quartz Glass* is the enclosed envelope that contains in its interior, the tungsten heating wire-including their support and a proprietary gas composition.

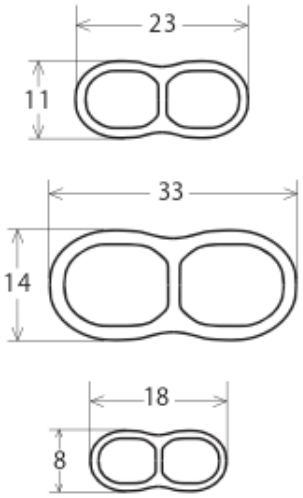
This extraordinary material offers unique physical characteristics of strength, thermal stability and infrared transparency, see Figure to the right.

Thermal conductivity = 1.3 W/(m °K)
Refractive index 1.52 < *n* <1.68, between 0.2 to 2.4 μm
Maximum continuous operating temperature: 1,100°C
Short term operating temperature: 1,300°C
Softening point: 1,730°C









Standard cross-section dimensions for industrial IR twin tubes in mm.

- IR lamp as emitter. The emissivity values of the tungsten are greater in the near and short-wave infrared regions.

The **heating efficiency** of an IR lamp can be easily increased by employing reflectors. On its the exterior surface, the options are gold and white layers. Outside of the lamp, the best options are parabolic/elliptic shapes for single and twin lamps with gold coated layer.

- The life of an IR lamp greatly depends on its coil's operating temperature: A 10% increase/decrease on its rated voltage results on a 30% decrease/ increase on its life.

The optimum operating temperatures for various components of an infrared lamp are:

- Pinch-seal area, max. 350°C
- Quartz tube, max. and min. temp. are 900°C and 250°C, respectively.

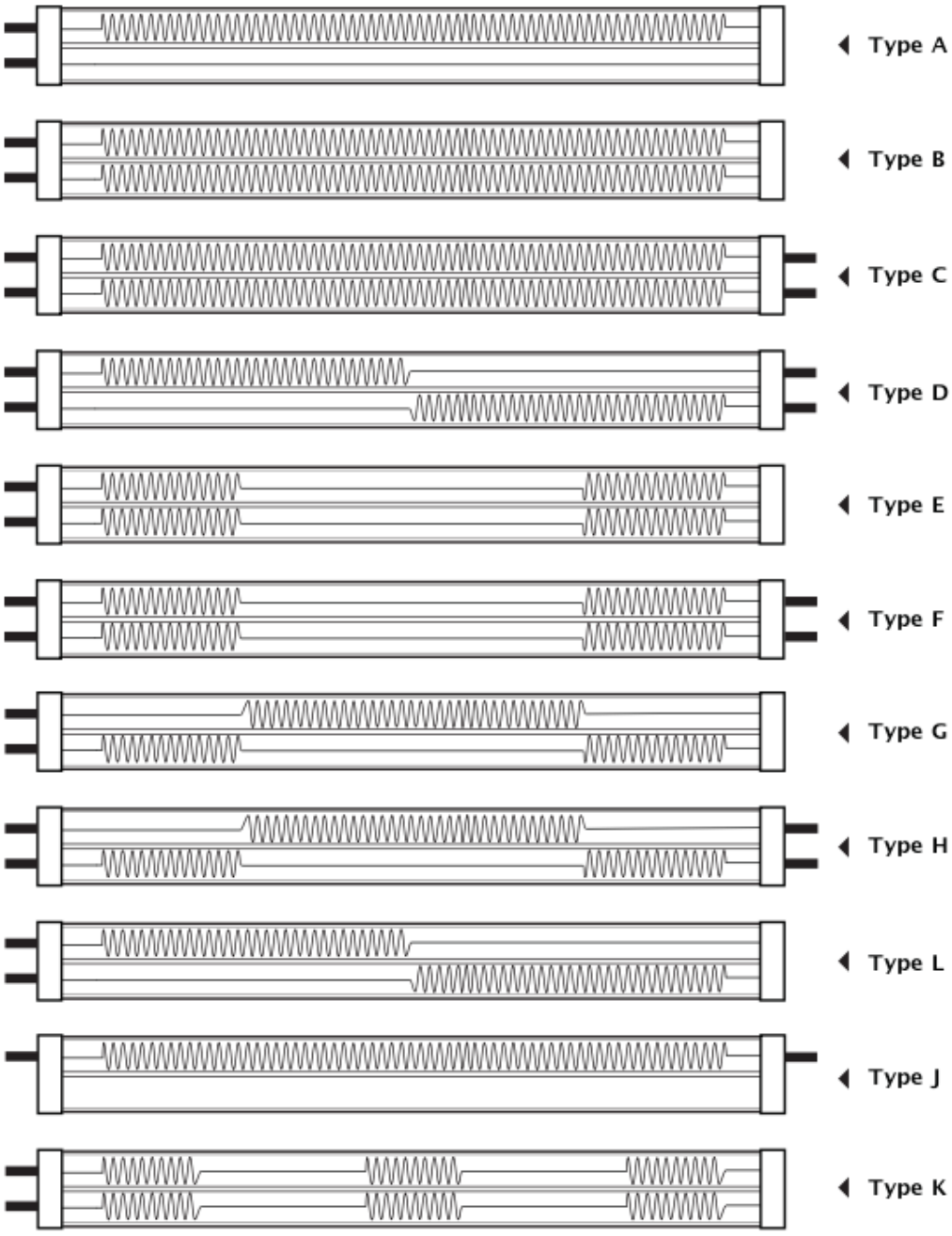
The steel beam design

- The strength of a quartz tube was drastically increased by borrowing a design concept from the construction industry: the *steel beam*. This new design allows twin tube lengths of up to 6 m (cross section: 33 x 14 mm).

Twin Twin Cross-Section	Maximum Length, m	Applicable to: S-W	M-W
8 x 18	2.1	N	Y
23 x 11	3.5	Y	Y
33 x 14	4.0	Y	Y

Heater dimensions depend on the required voltage/wattage relationship.

STANDARD TWIN TUBE CONSTRUCTION TYPES



Plus any other permissible
wattage/voltage design!

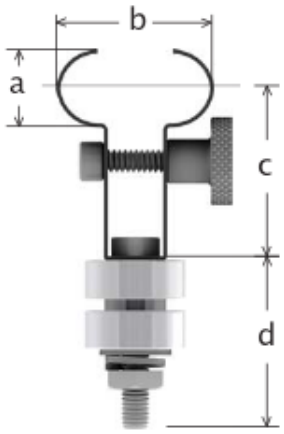
Stock and Standard (Non-Stock) Twin Tube Short-Wave Lamps

Ref. No.	Voltage V	Wattage W	Twin Tube	Total Length	Heated Length	Dsgn Type	UVIR No.			Heraeus No.	
							Gold	White	None	Gold	White
1	55	400	11 x 23	115	50	B	THG100151	THW100025	THC100026	45130750	
2	115	400	11 x 23	115	50	B	THG100152	THW100026	THC100027		
3	115	450	11 x 23	70	25	B	THG100153	THW100027	THC100028	80010767	
4	115	450	11 x 23	72	25	B	THG100154	THW100028	THC100029		
5	115	600	11 x 23	145	80	B	THG100155	THW100029	THC100030	09751713	
6	115	900	11 x 23	170	115	B	THG100156	THW100030	THC100031		
7	115	1000	11 x 23	192	127	B	THG100157	THW100031	THC100032		
8	115	1100	11 x 23	205	140	B	THG100158	THW100032	THC100033	80009069	
9	120	700	11 x 23	140	89	B	THG100159	THW100033	THC100034		
10	120	800	11 x 23	167	102	B	THG100160	THW100034	THC100035		
11	120	1180	11 x 23	250	150	B	THG100161	THW100035	THC100036		80046737
12	230	1200	11 x 23	405	340	B	THG100162	THW100036	THC100037	09751741	
13	230	1500	11 x 23	300	200	B	THG100163	THW100037	THC100038	09751751	
14	230	2350	11 x 23	410	355	B	THG100164	THW100038	THC100039		
15	230	3000	11 x 23	650	500	C	THG100165	THW100039	THC100040	09751761	
16	230	4200	11 x 23	850	700	C	THG100166	THW100040	THC100041	09751765	
17	240	1250	11 x 23	250	190	B	THG100167	THW100041	THC100042		
18	240	1500	11 x 23	255	190	B	THG100168	THW100042	THC100043	80002677	
19	240	1500	11 x 23	260	216	B	THG100169	THW100043	THC100044		
20	240	1650	11 x 23	314	254	B	THG100170	THW100044	THC100045		
21	240	2000	11 x 23	320	255	B	THG100171	THW100045	THC100046	45132045	
22	230	2000	11 x 23	370	305	B	THG100172	THW100046	THC100047	45132827	
23	230	2750	11 x 23	450	350	B	THG100173	THW100047	THC100048		80046754
24	230	3400	11 x 23	510	430	C	THG100174	THW100048	THC100049	80009073	
25	400	3000	11 x 23	500	600	B	THG100175	THW100049	THC100050	09751740	
26	400	3000	11 x 23	1100	1000	A	THG100176	THW100050	THC100051	09751720	
27	400	3500	11 x 23	850	760	B	THG100177	THW100051	THC100052		
28	400	5000	11 x 23	1550	1440	B	THG100178	THW100052	THC100053		
29	400	5400	11 x 23	1200	1200	H	THG100179	THW100053	THC100054		
30	400	6000	11 x 23	1150	1000	C	THG100180	THW100054	THC100055	09751760	

Stock and Standard (Non-Stock) Twin Tube Short-Wave Lamps

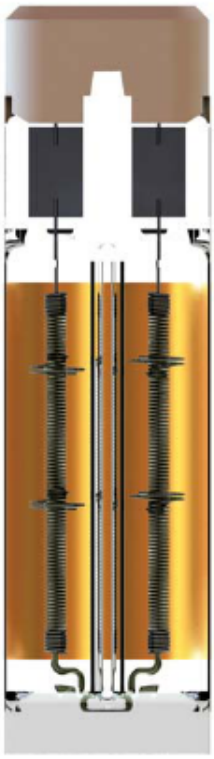
Ref. No.	Voltage V	Wattage W	Twin Tube	Total Length	Heated Length	Dsgn Type	UVIR No.			Heraeus No.	
							Gold	White	None	Gold	White
31	400	7000	11 x 23	1450	1300	C	THG100181	THW100055	THC100056	09751731	
32	415	3500	11 x 23	1100	1020	A	THG100182	THW100056	THC100057		
33	480	5510	11 x 23	700	700	B	THG100183	THW100057	THC100058		80046755
34	480	6000	11 x 23	1000	1000	B	THG100184	THW100058	THC100059	80042199	
35	480	10000	11 x 23	450	1780	C	THG100185	THW100059	THC100060	45130753	
36	230	500	15 x 33	510	500	B	THG100114	THW100060	THC100061		
37	400	4800	15 x 33	500	800	B	THG100141	THW100061	THC100062		
38	400	6200	15 x 33	1100	1030	B	THG100002	THW100062	THC100063		
39	400	15720	15 x 33	850	1334	H	THG100186	THW100063	THC100064	814998351	
40	480	6000	15 x 33	1550	1000	B	THG100140	THW100064	THC100065		

CLAMPS FOR THE S-W TWIN LAMPS



Twin Tube Cross-Section	a	b	c	d	e	M	UVIR No.
23 x 11	10	23	25	20	10	M5 x 20	GJ0002
33 x 15	15	33	30	25	15	M5 x 25	GJ0003

THE SPOTTY



Maximum Power *per* Unit Length

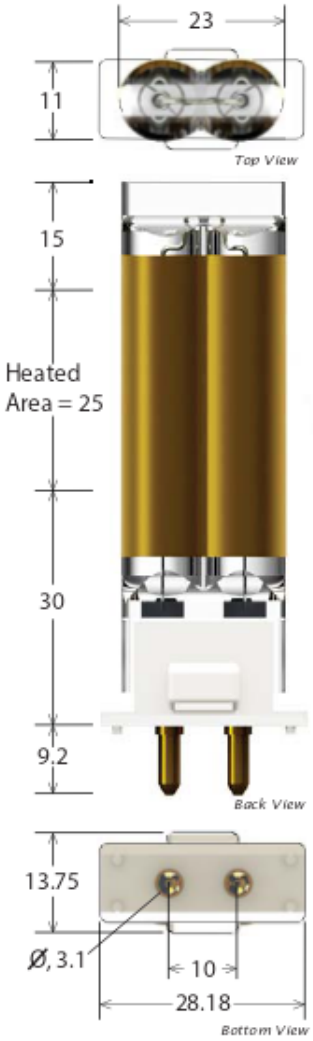
Each coil generates
up to 225 watts in a
length of 25 mm

Shown White
Reflective Layer

Stock and Standard (Non-Stock) Twin Tube Short-Wave Spotty Lamps

Ref. No.	Voltage V	Wattage W	UVIR No.			Heraeus No.	
			Gold	White	None	Gold	White
1	115	200	THG100145	THW100005	THC100005		
2	115	250	THG100146	THW100006	THC100006		
3	115	450	THG100147	THW100007	THC100007		80045902
4	220	200	THG100148	THW100008	THC100008		
5	220	300	THG100149	THW100009	THC100009		
6	220	450	THG100150	THW100010	THC100010		

SPOTTY QUICK CONNECT



All dimensions are in mm

All the Power of the Spotty!

- Easy installation
- Quick replacement
- Highest power density
- Voltage from 24 to 250 V

Stock and Standard (Non-Stock) Twin Tube Short-Wave Quick Connect Lamps

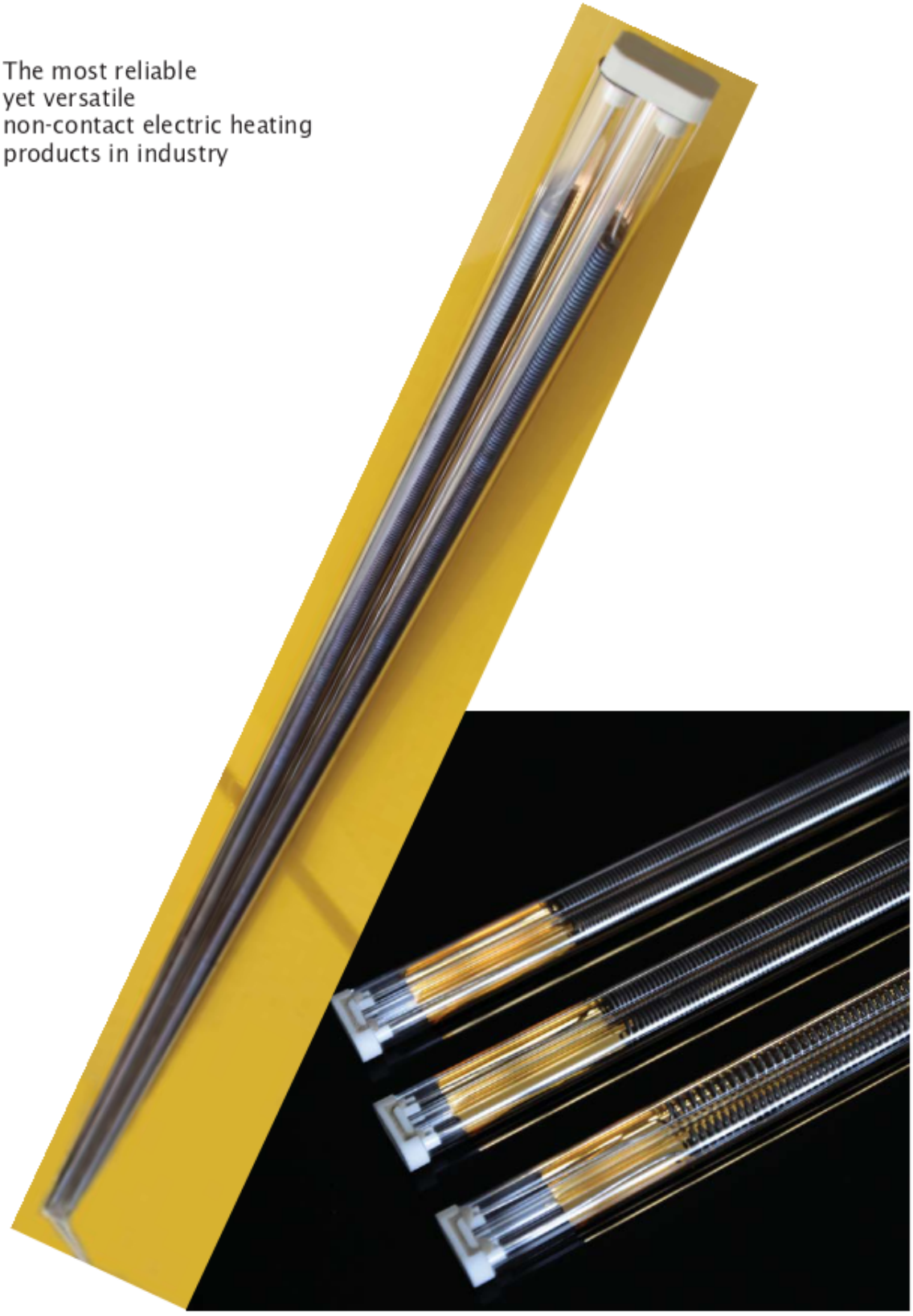
Socket Model K525K

Part No.	TZ001

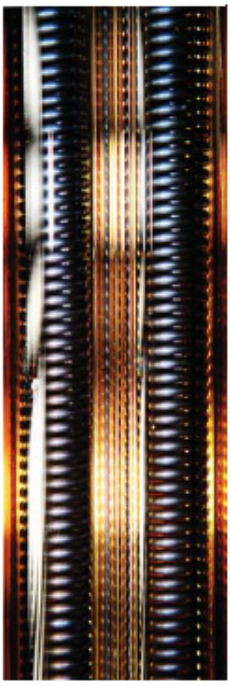
Ref. No.	Voltage V	Wattage W	UVIR No.			Heraeus No.	
			Gold	White	None	Gold	White
1	55	400	THG100187	THW100011	THC100012		
2	57.5	250	THG100188	THW100012	THC100013		
3	115	300	THG100189	THW100013	THC100014		
4	115	450	THG100190	THW100014	THC100015	80010767	80047621
5	220	300	THG100191	THW100015	THC100016		
6	220	450	THG100192	THW100016	THC100017		

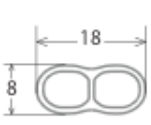
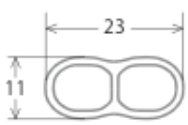
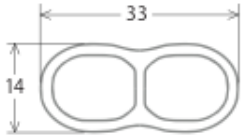
TWIN TUBE MEDIUM-WAVE IR LAMPS

The most reliable
yet versatile
non-contact electric heating
products in industry



TWIN TUBE MEDIUM-WAVE IR LAMPS



Technical Information			
Max. Power Density, W/cm	16.5	20	25
Max. Voltage/Amperage	480 V/10 A	480 V/15 A	600 V/25 A
Max. Surface Watt Density	200 W·cm^2	230 W·cm^2	230 W·cm^2
Max. Overall Length , mm	2,100	**3,500**	4,000
Min. Lead Cold Length, mm	25	38	41
Min. Blind Cold Length, mm	19	19	19
Overall Length Tolerances: Up to 500 mm 501 - 1,000 mm 1,001 - 1,500 mm Over 1500 mm	± 2.5 mm ± 3.5 mm ± 5 mm ± 6 mm		
Heated Length Tolerances: Up to 500 mm 501 - 1,000 mm 1,001 - 1,500 mm Over 1500 mm	± 5 mm ± 7 mm ± 10 mm ± 12mm		

Stock and Standard (Non-Stock) Twin Tube M-W Lamps

Ref. No.	Voltage V	Wattage W	Twin Tube	Total Length	Heated Length	Dsgn Type	UVIR No.			Heraeus No.	
							Gold	White	None	Gold	White
1	220	1700	15 x 33	1280	1200	B	TMG100006	TMW100001	TMC100001		
2	230	500	8 x 18	400	300	B	TMG100007	TMW100002	TMC100002	09752439	
3	230	1000	11 x 23	600	500	B	TMG100008	TMW100003	TMC100003	09755167	
4	230	2000	15 x 33	900	800	B	TMG100009	TMW100004	TMC100004	09755054	
5	230	2500	15 x 33	1100	1000	B	TMG100010	TMW100005	TMC100005	09755255	
6	230	2500	15 x 33	1300	1200	C	TMG100011	TMW100006	TMC100006	09753923	
7	230	3250	15 x 33	1420	1300	B	TMG100012	TMW100007	TMC100007	09753187	
8	230	3750	15 x 33	1600	1500	B	TMG100013	TMW100008	TMC100008	09754585	
9	380	4800	15 x 34	2135	2035	B	TMG100014	TMW100009	TMC100009		
10	400	4100	15 x 33	1800	1700	B	TMG100015	TMW100010	TMC100010	09754863	
11	400	4500	15 x 33	1920	1800	B	TMG100016	TMW100011	TMC100011	09754783	
12	400	5250	15 x 33	2200	2100	B	TMG100017	TMW100012	TMC100012		
13	400	5750	15 x 33	2400	2300	B	TMG100018	TMW100013	TMC100013		09756083
14	400	6250	15 x 33	2600	2500	B	TMG100019	TMW100014	TMC100014		09753874
15	415	1250	15 x 33	1100	1030	B	TMG100020	TMW100015	TMC100015		

Standard Design Types for Different Coil Configurations

Please refer to Page 8

Lead Wire Configurations and Lengths

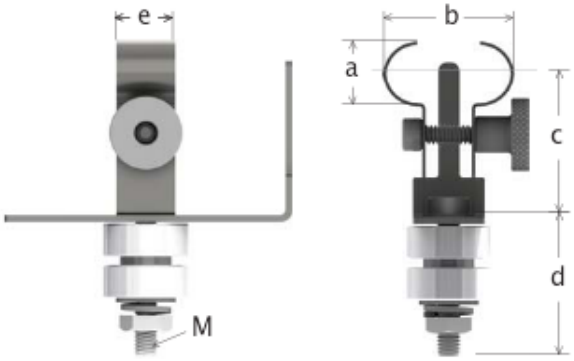
18 Gauge insulated lead wire rated at 450°C and 600 V. Standard terminals are ring and spade. Lead length variable.

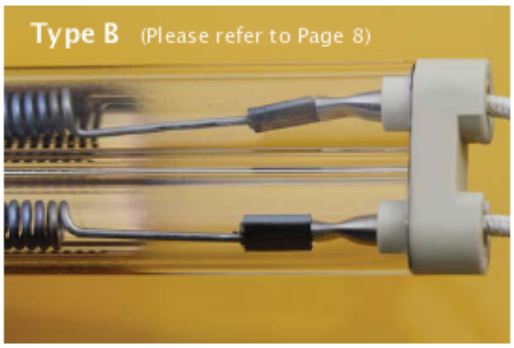
Reflective Layers Availability

Gold, up to 95% IR reflectance. The max. coil operating temperature should be 800°C.

White, a proprietary ceramic formulation that is applied to the exterior surface of the quartz tube with a 75% IR reflectance. The maximum coil operating temperature should be 1,100°C.

Clamps for M-W IR Lamps





Twin Tube Cross-Section	a	b	c	d	e	M	UVIR No.
23 x 11	10	23	25	20	10	M5 x 20	GJ0002
33 x 15	15	33	30	25	15	M5 x 25	GJ0003
18 x 8	8	18	25	25	10	M5 x 20	GJ0005

Stock and Standard (Non-Stock) Twin Tube M-W Carbon Lamps

Ref. No.	Voltage V	Wattage W	Twin Tube	Total Length	Heated Length	Dsgn Type	UVIR No.			Heraeus No.	
							Gold	White	None	Gold	White
1	60	1200	15 x 33	315	170	B	TCG100008	TCW100001	TCC100001		80046756
2	115	2200	15 x 33	445	300	B	TCG100009	TCW100002	TCC100002	45134293	
3	120	2200	15 x 33	495	350	B	TCG100010	TCW100003	TCC100003		80046757
4	230	4000	15 x 33	845	700	B	TCG100011	TCW100004	TCC100004	800009221	
5	230	4600	15 x 33	745	600	B	TCG100012	TCW100005	TCC100005	45134868	
6	230	9000	15 x 33	1400	1250	C	TCG100013	TCW100006	TCC100006	800012443	
7	240	4400	15 x 33	845	700	B	TCG100014	TCW100007	TCC100007		80046758
8	400	7800	15 x 33	1245	1100	B	TCG100015	TCW100008	TCC100008	800012442	
9	400	8000	15 x 33	1145	1000	B	TCG100016	TCW100009	TCC100009	45134870	
10	480	7900	15 x 33	1695	1550	B	TCG100017	TCW100010	TCC100010	80009326	

Ring Tube IR Lamps

Special Designs for Circular
2,3-D Surfaces

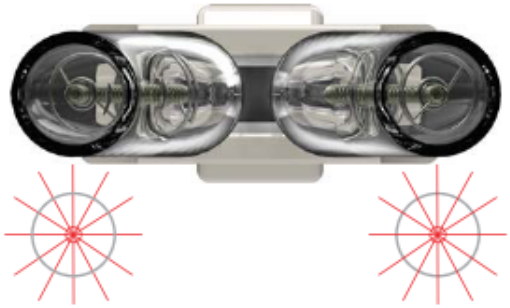
Main Design Characteristics

- Ring diameter from 39 up to 600 mm
- Voltage from 24 to 575 V
- Short, Medium and Long-Wave IR designs
- Availability in various tube colors
- The tube diameter can be from 8 - 14 mm.
  Its selection depends on the heater's diameter
  and the voltage/wattage relationship
- Standard stock items for immediate delivery
- Custom and OEM designs are available

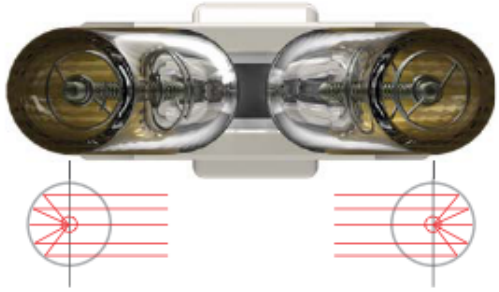
Gold Reflective Layers for the Ring IR Lamps

Top View of Section A-A', Bottom Picture

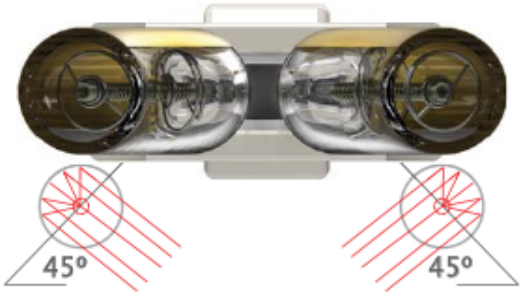
Without Reflective Layer



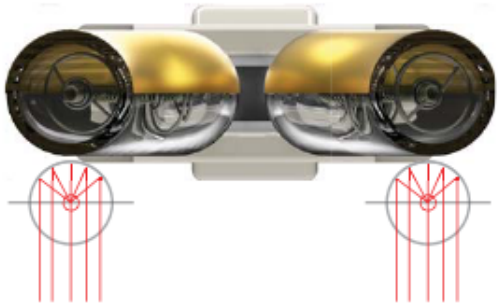
Gold 1

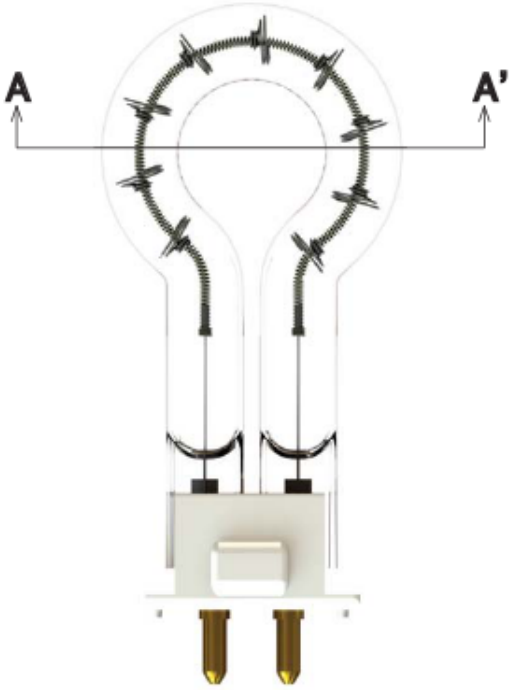


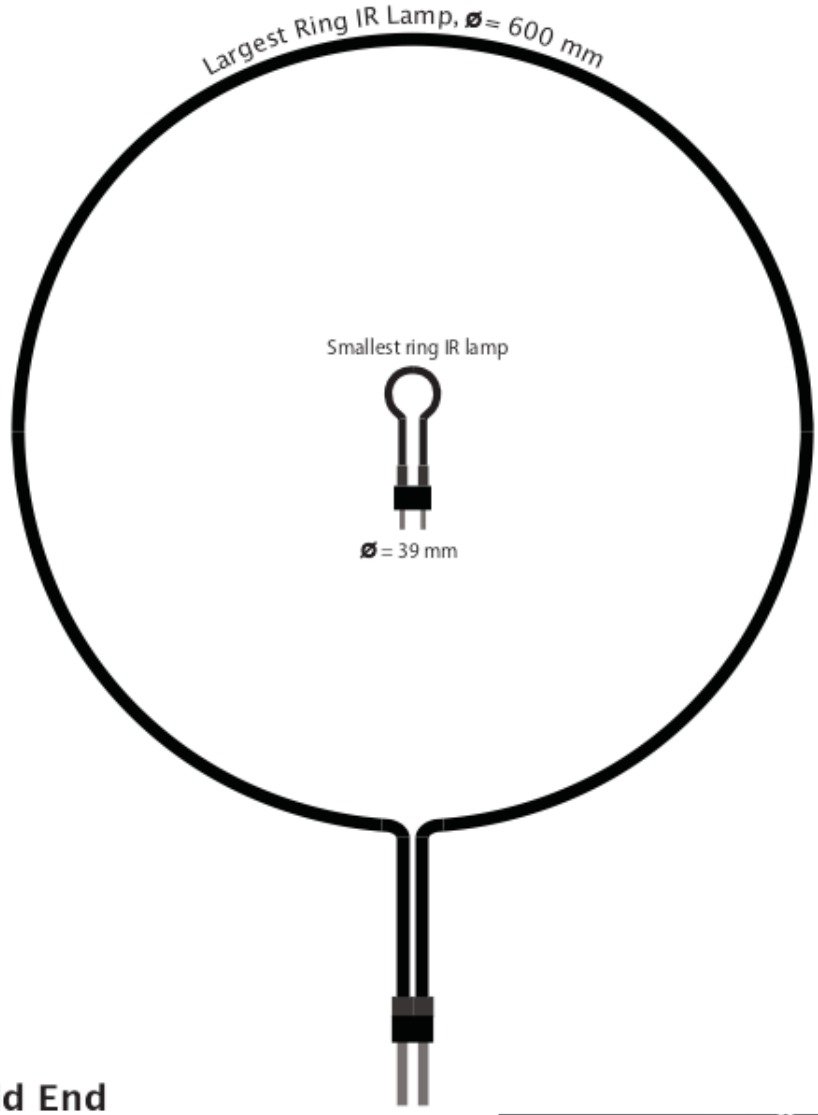
Gold 3



Gold 2







Cold End
Options: 0º and 90º

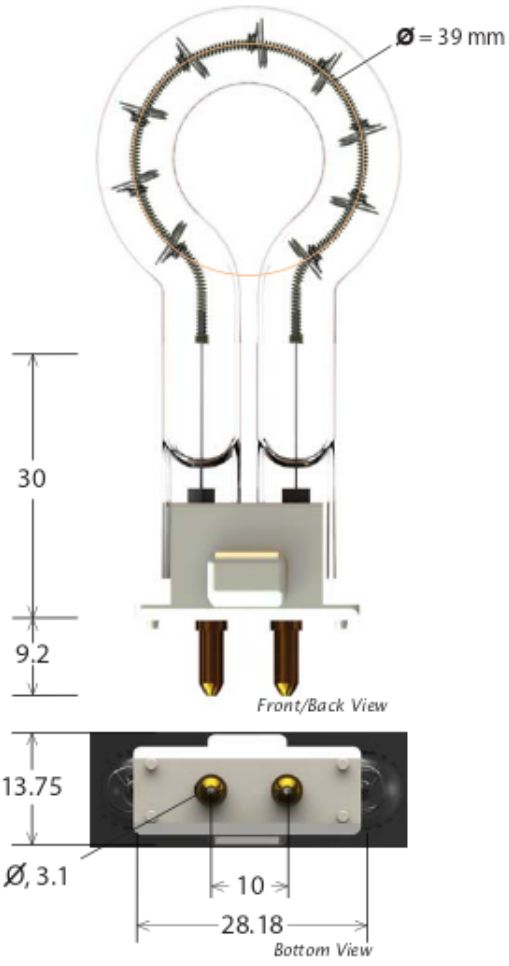
Stock and Standard (Non-Stock) Ring Short-Wave ø = 39 mm Quick Connect Lamps

Ref. No.	Voltage V	Wattage W	Tube ø	UVIR No.			
				Without	Gold 1	Gold 2	Gold 3
1	115	200	8	RHC800300	RHG800300	RHG800306	RHG800312
2	115	200	10	RHC800301	RHG800301	RHG800307	RHG800313
3	115	450	8	RHC800302	RHG800302	RHG800308	RHG800314
4	220	200	8	RHC800303	RHG800303	RHG800309	RHG800315
5	220	300	8	RHC800304	RHG800304	RHG800310	RHG800316
6	220	450	8	RHC800305	RHG800305	RHG800311	RHG800317

Socket Model K525K

Part No.	TZ001

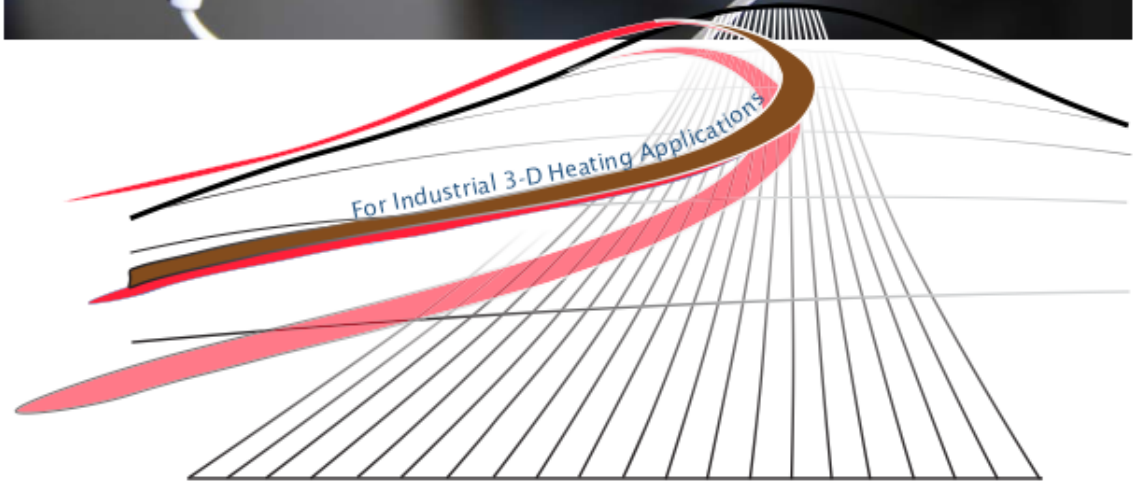
All dimensions are in mm



Stock and Standard (Non-Stock) Short-Wave Ring Lamps

Ref. No.	Voltage V	Wattage W	Tube Ø	IR Ring Ø	End Dsgn	UVIR No.				Heraeus No.			
						Without	Gold 1	Gold 2	Gold 3	Without	Gold 1	Gold 2	Gold 3
1	115	250	8	39	0	RHC800023	RHG800063	RHG800064	RHG800065	80008210	80008212	80008213	80008214
2	120	650	10	32	90	RHC800028	RHG800078	RHG800043	RHG800093			80008213	
3	230	1500	8	80	0	RHC800024	RHG800066	RHG800067	RHG800068	80008221	80008223	80008223	80008224
4	230	1850	8	102	0	RHC800025	RHG800025	RHC800025	RHG800025	80008210	80008212	80008213	80008214
5	230	2000	8	154	0	RHC800026	RHG800072	RHG800073	RHG800074	80008236	80008237	80008238	80008239
6	230	2200	8	180	0	RHC800027	RHG800075	RHG800076	RHG800077	80008240	80008241	80008242	80008243
7	240	1000	10	65	90	RHC800029	RHG800079	RHG800048	RHG800094			80048670	
8	240	1600	10	97	90	RHC800030	RHG800080	RHG800049	RHG800095			80048669	
9	240	1750	10	129	90	RHC800031	RHG800081	RHG800050	RHG800096			80048668	
10	480	2100	10	161	90	RHC800032	RHG800082	RHG800051	RHG800097			80048667	
11	480	2500	10	193	90	RHC800033	RHG800083	RHG800052	RHG800098			80048666	
12	480	2850	10	223	90	RHC800034	RHG800084	RHG800053	RHG800099			80048676	
13	480	3180	10	252	90	RHC800035	RHG800085	RHG800054	RHG800100			80048675	
14	480	3520	10	282	90	RHC800036	RHG800086	RHG800055	RHG800101			80048674	
15	480	3800	10	312	90	RHC800037	RHG800087	RHG800056	RHG800102			80048673	
16	480	4200	10	341	90	RHC800038	RHG800088	RHG800057	RHG800103			80048672	
17	480	4600	14	371	90	RHC800039	RHG800089	RHG800058	RHG800104			80048665	
18	480	5000	14	404	90	RHC800040	RHG800090	RHG800059	RHG800105			80048663	
19	480	5700	14	478	90	RHC800041	RHG800091	RHG800060	RHG800106			80048652	
20	480	6000	14	511	90	RHC800042	RHG800092	RHG800061	RHG800107			80048651	

RING IR LAMPS PICTORIAL


For Industrial 3-D Heating Applications