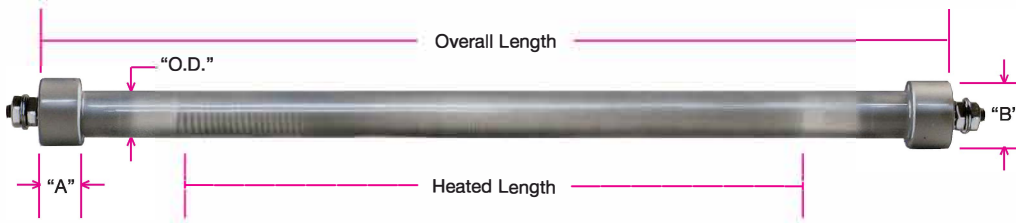


KRD Radiant Quartz Heaters

Vitreous Silica Quartz Tube



Quartz Heater Dimensions

Quartz Tube O.D.	"A"	"B"
3/8"	3/8"	5/8"
1/2"	1/2"	7/8"
5/8"	1/2"	7/8"

Tempco Radiant Quartz heaters are one of the most efficient sources of radiant energy. They are ideally suited for processes that require wavelengths in the medium 4.0-2.4 micron band for efficient operation. These heaters are capable of generating full heat output in 80-100 seconds with a cool-down range of 180-225 seconds depending on the mass of the resistance coil and power density level.

They offer excellent life when used in either rapid cycling or continuous radiant heating applications. To achieve the best operating life, these quartz heaters should be operated with surface watt densities in the 35-40 watts per square inch range, not exceeding the maximum power densities specified below.

Construction Features

The heater consists of a helically wound resistance wire coil enclosed in a pure vitreous silica fused quartz tube with a translucent (semi-opaque) surface. The tubing is terminated at the ends with specially designed ceramic caps securely fastened with high temperature ceramic cement providing support for the field wiring screw terminals used for power connections.

The diffusion effect of the opaque quartz tube surface broadens the emitted wavelength range without creating objectionable glare due to emissions in the visible spectrum. Optimum design provides a clear red color on the translucent tube surface when operating at full line voltage. The emitted wavelength band is almost completely absorbed by the process and considered best for most industrial radiant applications.

Typical Applications

- ➔ Shrink Packaging Tunnels
- ➔ Laminating
- ➔ Thermoforming
- ➔ Plastic Forming
- ➔ Fusing Plastics
- ➔ Vulcanizing Rubber
- ➔ Sterilization
- ➔ Sealing
- ➔ Food Warming
- ➔ Thawing
- ➔ Electrostatic Copying Equipment
- ➔ Food Processing
- ➔ Drying Photo Film Equipment
- ➔ Curing Rubber
- ➔ Drying Textiles
- ➔ Drying Lacquers and Paints
- ➔ Drying Sand Cores
- ➔ Space Heaters
- ➔ Thermal Copying Equipment

QUARTZ HEATER SPECIFICATIONS – DIMENSIONAL

Diameters: 3/8", 1/2" and 5/8"

Max. Length: 3/8" dia. – 50"
1/2" dia. – 100"
5/8" dia. – 100"

Length Tolerance: Up to 12" long $\pm 1/8"$
Over 12" long $\pm 1/4"$

QUARTZ HEATER SPECIFICATIONS – ELECTRICAL

Max. Volts: 480 Volts

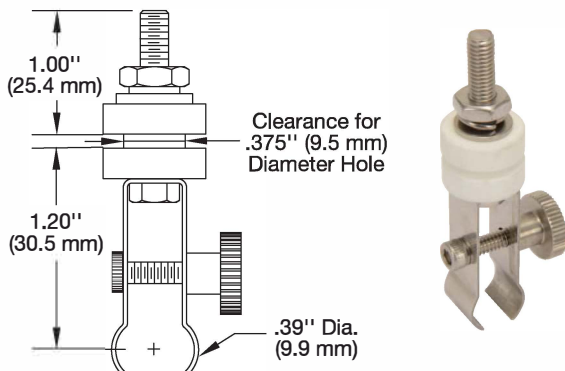
Max. Amperage: 20 Amps

Resistance Tolerance: +10%, -5%

Wattage Tolerance: +5%, -10%

Max Watt Density: 40 Watts/sq. in.

Mounting Clamp for 3/8 Quartz Tube OD



Mounting Clamp Part Number: CRK00059

Type ARK Vitreous Silica Quartz Tube Panel Arrays

Custom 4" high Type ARK panels with 1/2" diameter quartz elements are available. Tempco will design and build to your specifications. Consult us with your requirements.



Warning: Quartz Heaters are designed to be used in a Horizontal Position Only

Vitreous Silica Quartz Tube

Standard Sizes and Electrical Ratings

Vitreous Silica Quartz Tube heaters listed have Type T1 termination.

Quartz Tube Diameter	Overall Length		Heated Length		Watts	Part Number	
	in	mm	in	mm		120V	240V
3/8"	14	355.6	12½	317.5	480	KRD00001	KRD00002
	20	508.0	18½	469.9	720	KRD00003	KRD00004
	26	660.4	24½	622.3	960	KRD00005	KRD00006
	38	965.2	36½	927.1	1450	KRD00007	KRD00008
	48	1219.2	46½	1181.1	1900	—	KRD00009
1/2"	18	457.2	16½	419.1	900	KRD00010	KRD00011
	20	508.0	18½	469.9	900	KRD00012	KRD00013
	26	660.4	24½	622.3	1200	KRD00014	KRD00015
	36	914.4	34½	876.3	1800	KRD00016	KRD00017
	38	965.2	36½	927.1	1800	KRD00018	KRD00019
	42	1066.8	40½	1028.7	1580	KRD00020	KRD00021
	48	1219.2	46½	1181.1	1820	KRD00022	KRD00023
	50	1270.0	48½	1231.9	2400	—	KRD00024
	54	1371.6	52½	1333.5	2060	—	KRD00025
	60	1524.0	58½	1485.9	2300	—	KRD00026
5/8"	24	609.6	21	533.4	1075	KRD00029	KRD00030
	26	660.4	23	584.2	1800	KRD00031	KRD00032
	30	762.0	27	685.8	1375	KRD00033	KRD00034
	38	965.2	35	889.0	2500	—	KRD00035
	42	1066.8	39	990.6	1975	KRD00036	KRD00037
	48	1219.2	45	1143.0	2275	—	KRD00038
	50	1270.0	47	1193.8	3400	—	KRD00039
	54	1371.6	51	1295.4	2575	—	KRD00040
	60	1524.0	57	1447.8	2875	—	KRD00041
	62	1574.8	59	1498.6	4200	—	KRD00042
66	1676.4	63	1600.2	3175	—	KRD00043	
72	1828.8	69	1752.6	3475	—	KRD00044	

Terminations



Type T1 Standard Termination
10-32 thread screw terminal standard termination.



Type T2 Panel Mount Bushings
10-32 thread screw terminals with extension bushings for CRA/TRH housing assemblies.



Type ST Tabs with Slotted Holes
1/2" wide x 3/4" long, with a 9/32" x 3/8" slot. Alternate mounting method.



Type FT Quick Disconnect Fuse Type
Fuse-type connector provides ease of installation. Connectors are 3/8" OD x 1/2" long brass.



Type L1 Straight-Out Leads
10" flexible lead wire externally spliced standard. If longer leads are required, specify.



Type C4 Ceramic Caps with Leads
This termination provides 10-32 screw terminals insulated with ceramic terminal covers. Screws are prewired with 10" flexible lead wire. If longer leads are required, specify (also for T1 or T2).

Ordering Information

Catalog Heaters

Order by Part number for standard heaters listed above.

Part Numbers listed are for heaters supplied with Type 1 Termination. For other terminations a Part Number will be issued at time of order.

Custom Engineered/Manufactured Heaters

Understanding that an electric heater can be very application specific, for sizes and ratings not listed, **TEMPCO** will design and manufacture a Radiant Quartz Heater to meet your requirements.

Standard lead time is 3 weeks.

Please Specify the following:

- Diameter
- Overall Length
- Heated Length
- Wattage
- Voltage
- Termination Type
- Lead Length; if applicable
- Mounting Clamps (See page 7-70)

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

KRH Series

KRH Quartz Radiant Heaters

Quartz Sheath Medium Wave Radiant Heater Assemblies in a Universal 2000 Housing



Designed for use in applications that require rapid on/off response and fast heat-up and cooldown rates. These heater assemblies are designed to operate in the medium wavelength range of 4.0-2.4 microns (700 to 1715°F peak emitter temperatures). These Modular Housing assemblies utilize a .50 diameter translucent “milky white” vitreous quartz tube enclosing a high temperature resistance wire coil. The diffusion effect of the translucent quartz tube surface broadens the emitted infrared wavelength range obtained without objectionable glare due to low emissions in the visible spectrum. The units have either single or dual heaters mounted at the focal point of a polished aluminum reflector within the housing. These heater assemblies are available in a wide range of power densities. For housing dimensions and mounting details see page 7-76.

Design Features

- * *Direct Retrofit into existing NEMA 1 applications*
- * *Rugged Universal 2000 anodized aluminum housing*
- * *Wattage range of 600W to 7200W in standard designs*
- * *Voltages of 120-480V available depending on heated length*
- * *Power densities up to 65w/in per heater (20 amps max/heater)*
- * *Maximum Housing assembly length 84"; minimum 15"*
- * *Fast response, 40-80 sec for full element heat-up*
- * *Full cooldown in less than 4-8 minutes*
- * *Single end wiring option available*
- * *Multiple heat/dual voltage wiring options for dual heater units*
- * *Utilizes standard TRH removable guard designs*
- * *External power wiring options available*

Standard (Non-Stock) KRH1 Sizes & Ratings (55-60 w/in.) – Single Element Double End Termination

Wattage	Volts	Overall Length		Heated Length		Part Number without Guard	Part Number with Guard	Replacement Element Part Number	Replacement Protective Wire Guard	Replacement Reflector Set Part Number
		in	mm	in	mm					
600	120	18	457	9.75	248	KRH10001	KRH10030	KRD00266	GRD-104-104	SMPR-1018
	208					KRH10002	KRH10031	KRD00267		
	240					KRH10003	KRH10032	KRD00252		
	277					KRH10004	KRH10033	KRD00268		
	480					KRH10005	KRH10034	KRD00269		
900	120	24	610	15.75	401	KRH10006	KRH10035	KRD00270	GRD-104-105	SMPR-1019
	208					KRH10007	KRH10036	KRD00271		
	240					KRH10008	KRH10037	KRD00272		
	277					KRH10009	KRH10038	KRD00273		
	480					KRH10010	KRH10039	KRD00274		
1300	120	30	762	21.75	553	KRH10011	KRH10040	KRD00275	GRD-104-106	SMPR-1020
	208					KRH10012	KRH10041	KRD00276		
	240					KRH10013	KRH10042	KRD00277		
	277					KRH10014	KRH10043	KRD00278		
	480					KRH10015	KRH10044	KRD00279		
1600	208	36	914	27.75	705	KRH10016	KRH10045	KRD00280	GRD-104-107	SMPR-1021
	240					KRH10017	KRH10046	KRD00281		
	277					KRH10018	KRH10047	KRD00282		
	480					KRH10019	KRH10048	KRD00283		
	480					KRH10020	KRH10049	KRD00284		
2400	208	48	1219	39.75	1010	KRH10021	KRH10050	KRD00285	GRD-104-108	SMPR-1022
	240					KRH10022	KRH10051	KRD00286		
	277					KRH10023	KRH10052	KRD00287		
	480					KRH10024	KRH10053	KRD00288		
	480					KRH10025	KRH10054	KRD00289		
3000	208	60	1524	51.75	1315	KRH10026	KRH10055	KRD00290	GRD-104-109	SMPR-1023
	240					KRH10027	KRH10056	KRD00291		
	277					KRH10028	KRH10057	KRD00292		
	480					KRH10029	KRH10058	KRD00293		
	480					KRH10029	KRH10058	KRD00293		

NOTES: See page 7-76 for housing dimensions and mounting details.

Shipped with Instruction Sheet IDP-129-104 for installation, wiring and maintenance information.

KRH Quartz Radiant Heater Assemblies
Quartz Sheath Medium Wave Radiant Heater Assemblies in a Universal 2000 Housing



Standard (Non-Stock) KRH2 Sizes & Ratings (110-120 w/in.) – Double Element Double End Termination

Wattage	Volts	Overall Length		Heated Length		Part Number without Guard	Part Number with Guard	Replacement Element Part Number	Replacement Protective Wire Guard	Replacement Reflector Set Part Number
		in	mm	in	mm					
1200	120	18	457	9.75	248	KRH20001	KRH20030	KRD00266	GRD-104-104	SMPR-1018
	208					KRH20002	KRH20031	KRD00267		
	240					KRH20003	KRH20032	KRD00252		
	277					KRH20004	KRH20033	KRD00268		
	480					KRH20005	KRH20034	KRD00269		
1800	120	24	610	15.75	401	KRH20006	KRH20035	KRD00270	GRD-104-105	SMPR-1019
	208					KRH20007	KRH20036	KRD00271		
	240					KRH20008	KRH20037	KRD00272		
	277					KRH20009	KRH20038	KRD00273		
	480					KRH20010	KRH20039	KRD00274		
2600	120	30	762	21.75	553	KRH20011	KRH20040	KRD00275	GRD-104-106	SMPR-1020
	208					KRH20012	KRH20041	KRD00276		
	240					KRH20013	KRH20042	KRD00277		
	277					KRH20014	KRH20043	KRD00278		
	480					KRH20015	KRH20044	KRD00279		
3200	120	36	914	27.75	705	KRH20016	KRH20045	KRD00280	GRD-104-107	SMPR-1021
	208					KRH20017	KRH20046	KRD00281		
	240					KRH20018	KRH20047	KRD00282		
	277					KRH20019	KRH20048	KRD00283		
	480					KRH20020	KRH20049	KRD00284		
4800	120	48	1219	39.75	1010	KRH20021	KRH20050	KRD00285	GRD-104-108	SMPR-1022
	208					KRH20022	KRH20051	KRD00286		
	240					KRH20023	KRH20052	KRD00287		
	277					KRH20024	KRH20053	KRD00288		
	480					KRH20025	KRH20054	KRD00289		
6000	120	60	1524	51.75	1315	KRH20026	KRH20055	KRD00290	GRD-104-109	SMPR-1023
	208					KRH20027	KRH20056	KRD00291		
	240					KRH20028	KRH20057	KRD00292		
	277					KRH20029	KRH20058	KRD00293		
	480									

NOTES: See page 7-77 for housing dimensions and mounting details.

The Quartz elements are supplied at the same rated voltage as the overall assembly to be wired in parallel.

120V or 240V rated assemblies can be used at twice the rated voltage by wiring the elements in series. (120/240V or 240/480V)

Shipped with Instruction Sheet IDP-129-104 for installation, wiring and maintenance information.

Installation Notes:

Series KRH units are for Horizontal mounting only. KRD elements have T2, 10-32 terminals at both ends for field wiring connections. See page 7-71 for details. Wiring used in the junction boxes must be rated 250°C or higher, sized per NEC/NFPA for unit voltage and current carrying capacity. Use only 450°C rated wiring in internal wireways for single end or multiple heat options. When using copper wire for field wiring, use only nickel plated or nickel clad conductors.

Unplated or silver plated copper must not be used. See page 7-82 & 7-83 for wiring options. Do not mount heater housing closer than 6" to any combustible or structural material that does not have at least a 200°C continuous temperature rating.

Danger: Hazard of fire. These heaters are not for use in atmospheres where flammable or combustible vapors, dust, gases, or liquids are present as defined in the National Electrical Code. Where solvents, water vapor or other VOCs are being evaporated from the process, it is necessary to provide substantial quantities of ventilating air to remove all resulting vapors.

Wiring Options

Series KRH Heaters can be prewired with plain leads, stainless steel armor cable, galvanized armor cable, stainless steel wire braid or SJO cable. For additional information See Wiring Options on page 7-17.