Silicon Carbide (SIC) Heater

MALTEC-H

SIC heater is a kind of non-metal high temperature electric heating element. It is made of selected high-purity green silicon carbide as raw material which is made into blank and silicon crystal under high temperature of 2400°C. SIC can usually use in the furnaces which temperature from 600°C-1600°C. It can be directly used in an air atmosphere without any protection atmosphere the long-term usage of life can reach over 3000 hours. Futhermore, it has a higher working temperature and chemical stability, easy installation and extensively used in the fields metallurgy, ceramics, glass, machinery, analysis test, semiconductor, science and so on. Silicon carbide is a ceramic material with relatively high electrical conductivity when compared to other ceramics. Typical heating elements are rods or tubes, with diameters between 0.5 and 3 inches and lengths from 1 to 10 feet. They have metalized ends for electrical connections, and they often have both connections at one end, with two helical slots stop short of the other end, thus approximating a twisted hairpin form.

Application

SIC Heater is designed with specially formulated cold ends which significantly reduce the heat loss from the terminals concentrating the heat where needed in the furnace. Reduced heat losses result in lower power consumption saving energy costs also helping to reduce the furnace carbon footprint by lowering the greenhouse gas emission.

Metal Industries

- Powder metallurgy sintering
- Solution, molten cast holding, and aging processing of aluminum alloy
- Gas carburizing hardening of components for automotive, aircrafts, and machinery
- Carburizing, nitriding, and bright annealing for steel parts
- Hardening and tempering of various dies
- Brightness processing of die steel
- Tempering and soldering of machine components
- Carbon and sulphur analysis, tempering process for band steel
- Patenting processing for steel wire

Electronics Industry

- Firing of ceramic capacitors
- Sintering of alumina and steatite
- Firing of piezoelectric elements
- Firing of I.C. substrate and grazing
- Firing of ceramic resistors, varistor and thermistors
- Temporary sintering and calculations of soft and hard ferrite
- Heat treatment of shadow mask for colour TV, pure iron, permalloy, bright annealing of silicon steel plate, heat treatment of copper soldering, optical fibre, and compact discs

MALTEC-H

Porcelain Industry

- Fusion, retention, and gradual cooling of glass
- Surface treatment of glass
- Heat treatment of liquid crystal
- Lens matchingManufacturing of safety glass
- Manufacturing of ceramics and glass fibre
- Manufacturing of various fine ceramics
- Firing of quartz raw materials
- Firing of porcelain enamel
- Firing of ceramic ware
- Firing of grind stone
- Test for various refractory products

Chemical Industry

- Firing of fluorescent paint
- Firing of various pigments
- Firing of carriers and catalyst
- Heating of reactive gas
- Coal carbonization
- Firing of activated carbon
- Cleaning furnace and deodorizing furnace

Others

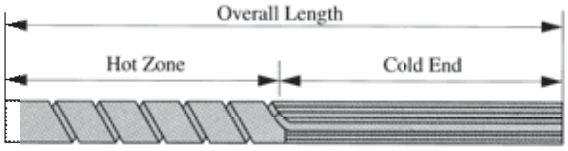
- Various high temperature test furnaces
- Ignition of gas and kerosene appliances
- Ignition of various types of industrial equipment
- Various high temperature tests
- Local heating
- Ash melting surface

Materials

Silicon Carbide

SGR - TYPE

MALTEC-H



As in SG-type elements, spiral grooves are provided on the heating section with a terminal section on one side only. One side connection of the terminal allows for easier operation and facilitates construction of furnaces with energy saving structures. SG and SGR-type products are recommended for applications involving severe operating conditions including high furnace temperature ranges exceeding 1400°C .

Size				Hot Zone Surface Area	Nominal Loading Values		
Dia meter	Hot Zone Length	Cold End Length	Overall Length				
mm	mm	mm	mm	cm^2	Volts	Watts	Ohms
16	100	150	250	50	61	970	3.96
	100	250	350	50	77	1190	4.98
	150	150	300	75	84	1290	5.47
	150	250	400	75	99	1520	6.45
	200	150	350	101	106	1630	6.89
	200	250	450	101	121	1860	7.87
	250	150	400	126	128	1970	8.32
	250	300	550	126	151	2330	9.79
20	100	150	250	63	59	1130	3.08
	100	250	350	63	72	1380	3.76
	150	150	300	94	81	1560	4.21
	150	250	400	94	94	1800	4.91
	200	150	350	126	102	1960	5.31
	200	250	450	126	116	2230	6.03
	250	150	400	157	125	2400	6.51
	250	250	500	157	138	2650	7.19
	300	200	500	188	153	2940	7.96
	300	250	550	188	160	3070	8.34
25	150	200	350	118	87	1990	3.80
	150	300	450	118	98	2240	4.29
	200	200	400	157	110	2520	4.80
	200	300	500	157	122	2790	5.33
	250	200	450	196	134	3070	5.85
	250	300	550	196	145	3320	6.33
	300	300	600	236	168	3850	7.33
	300	400	700	236	179	4100	7.81
	350	300	650	275	191	4370	8.35
	350	350	700	275	197	4510	8.61
	400	300	700	314	214	4900	9.35
30	200	200	400	188	90	2800	2.91
	200	300	500	188	91	2830	2.94
	250	200	450	236	111	3430	3.57
	250	300	550	236	112	3460	3.60
	300	300	600	283	132	4090	4.26
	300	400	700	283	133	4120	4.29

- Nominal Loading Values are measured with an EREMA Heating Element surface temperature of 1000°C in open air, and resistance values have a manufacturing tolerance of ± 20%

Size				Hot Zone Surface Area	Nominal Loading Values		
Dia meter	Hot Zone Length	Cold End Length	Overall Length				
mm	mm	mm	mm	cm^2	Volts	Watts	Ohms
30	350	300	650	330	153	4730	4.92
	350	400	750	330	153	4760	4.95
	400	300	700	377	173	5360	5.58
	400	400	800	377	174	5390	5.61
	450	300	750	424	193	6000	6.24
	450	350	800	424	194	6010	6.25
	500	300	800	471	214	6630	6.90
35	200	200	400	220	89	3250	2.43
	200	300	500	220	90	3280	2.45
	250	200	450	275	109	3990	2.98
	250	300	550	275	110	4020	3.00
	300	300	600	330	130	4760	3.56
	300	400	700	330	131	4790	3.58
	350	300	650	385	150	5510	4.11
	350	400	750	385	151	5540	4.13
	400	300	700	440	171	6250	4.67
	400	400	800	440	172	6280	4.69
	450	300	750	495	191	6990	5.22
	450	350	800	495	191	6010	5.23
	500	300	800	550	211	7740	5.78
40	200	200	400	251	86	3670	2.03
	200	300	500	251	87	3700	2.05
	250	200	450	314	106	4520	2.50
	250	300	550	314	107	4540	2.52
	300	300	600	377	127	5390	2.98
	300	400	700	377	127	5420	3.00
	350	300	650	440	147	6230	3.45
	350	400	750	440	147	6260	3.47
	400	300	700	502	167	7080	3.92
	400	400	800	502	167	7110	3.93
	450	300	750	565	186	7920	4.39
	450	350	800	565	187	7940	4.39
	500	300	800	628	206	8770	4.85

- Products of other sizes than those listed above are also manufactured.
- Manufacturable dimensions Diameter 55mm Hot zone 700mm overall length 1100mm