

Cartridge Heater



Application

Molds, Dies, Hot Plates, Package Equipment, Sealings, Fluid Heating, Semiconductor, Food Equipment, Labeling Machinery and Other Rapid Heating Equipment etc.

Material of sheath and operating temperature

Material	Application	Operating Temperature	Option
SUS304	Regula	Up to 500 °C	Standard
SUS316	Mild acid and alkaline resistance	Up to 500 °C	Optional
Incoloy	Mild acid and alkaline resistance	Up to 800 °C	Optional
Titanium	Acid and alkaline resistance	Up to 600 °C	Optional

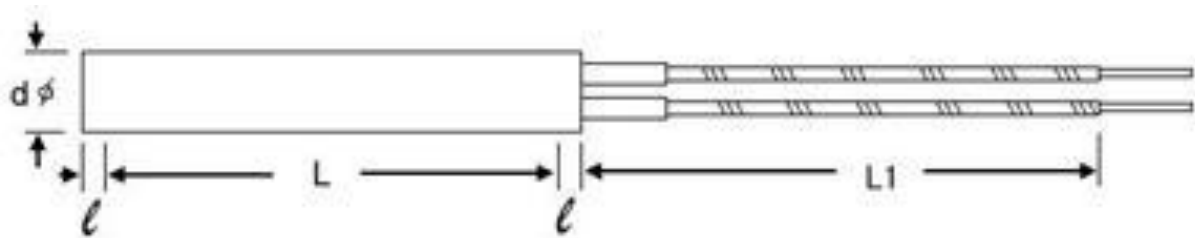
Typical maximum watt density

60~65 w/inch² or 8-10 w/cm²

Material of lead wire

Material	Ambient Temperature	Option
Copper with fiberglass insulation	Up to 200 °C	Standard
Copper with teflon insulation	Up to 220 °C, acid and alkaline resistance	Optional
Pure nickel with high temperature fiberglass insulation	Up to 400 °C	Optional

Standard Specification



L : Heating length l : unheated d : Diameter

$L1$: Heating resistance wire length (standard 300mm)

	1/4° (6~6.8m/m)	3/8° (7.8~9.5m/m)	1/2° (9.8~12m/m)	(12.3~13.8m/m)	5/8° (14~15.8m/m)	3/4° (16~19m/m)
1°(25.4m/m)	40W	50W	60W			
1 1/2(38.1)	60W	80W	95W	120W		
2(50.8)	75W	100W	125W	160W	180W	
2 1/2(60.3)	95W	125W	160W	200W	220W	
3(76.2)	115W	150W	190W	240W	270W	
3 1/2(88.9)	135W	180W	225W	280W	315W	
4(101.6)	150W	200W	250W	315W	350W	400W
4 1/2(114.3)	170W	230W	285W	360W	400W	465W
5(127)	190W	255W	320W	400W	450W	520W
5 1/2(139.7)	210W	280W	350W	440W	490W	575W
6(152.4)	230W	300W	380W	480W	535W	630W
6 1/2(165.1)	250W	330W	415W	520W	580W	680W
7(177.8)	270W	355W	445W	560W	620W	730W
8(203.2)	300W	400W	510W	640W	715W	820W
9(228.6)	345W	460W	570W	720W	800W	930W
10(254)	385W	510W	640W	800W	900W	1,050W
11(279.4)	420W	560W	700W	880W	980W	1,150W
13(330.2)		660W	830W	1,000W	1,150W	1,350W
15(381)			955W	1,200W	1,350W	1,550W
17(431.8)			1,100W	1,350W	1,500W	1,750W

※ Other customer's required sizes are available.

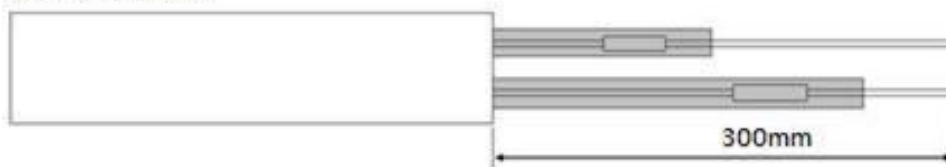
Capacity Calculating Formula

$$\frac{\text{Dia. (mm)} \times \pi (3.1416) \times \text{width(mm)}}{645} \times 60$$

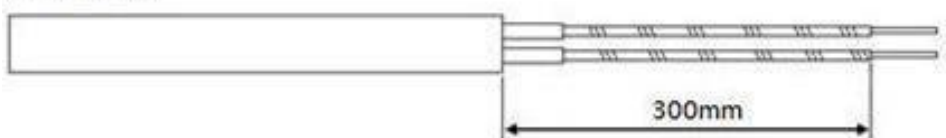
= Wattage (Maximum 3,000W for 200V up, 2,000W for 100/110V)

Termination type

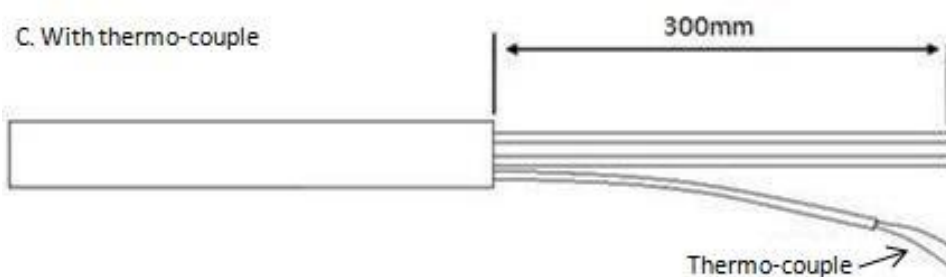
A. Conductor pins



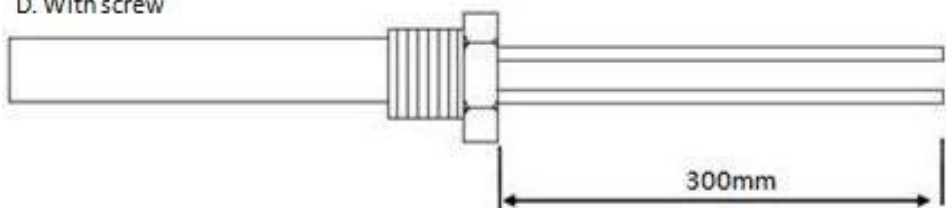
B. Swaged-in



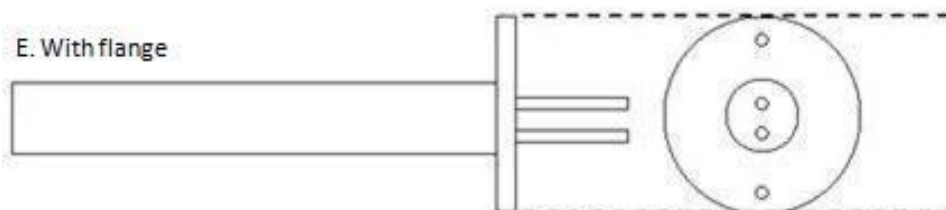
C. With thermo-couple



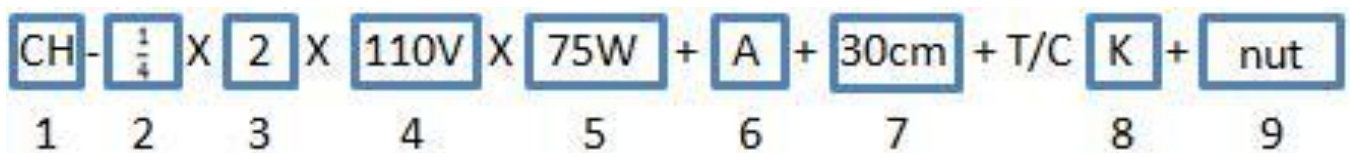
D. With screw



E. With flange



Order information



- (1). Cartridge Heater.
- (2). Diameter (both inch and m/m available).
- (3). Width (both inch and m/m available).
- (4). Voltage (100V~480V).
- (5). Wattage.
- (6). Connection type (A,B,C,D,E) if not mentioned, A type will be produced.
- (7). Lead wire length, if not mentioned, standard type with 30 cm length will be produced. (refer to lead wire specification).
- (8). With thermo-couple J or K. (if desired).
- (9). If desired, mention the size.

Remark :

If possible, when you want to order the heater please indicating working temperature and circumstance in order to design proper products and keep long life for use.

Technical Information

- (1). How to calculate required wattage :

$$Kw = \frac{M \times Cs \times \Delta T}{864 \times t(h)} (1 + H \text{ loss})$$

M : Weight of heating object. t(h) : Time(hour).

Cs : Heating rate. 864 : Rate of K cal. change to K watt.

ΔT : Temperature difference. H loss : Heating loss (about 20%~30%).

(2). Various material character and heating rate sheet :

Material	Weight rate (kg/dm ²)	Heating rate (KCal/Kg°C)	Melted temp.°C
Water	1.00	1.000	0
Iron,cast	7.20	0.120	1176
Inconel 600	8.41	0.126	1371
Incoloy 800	8.00	0.130	1371
Gold	19.32	0.032	1062
Silver	10.49	0.057	960
Brass-yellow	8.47	0.096	932
Copper	8.91	0.095	1082
Steel	7.86	0.122	1515
Stainless steel 304	7.91	0.120	1398
Stainless steel 430	7.61	0.110	1454
Lead liquid	10.71	0.037	
Lead solid	11.34	0.032	326
Magnesium	1.74	0.270	650
MgO (Compaced)	3.10	0.209	
Nickel 200	8.88	0.120	1435
Nichrome 80/20	8.35	0.110	1398
Tin liquid	7.00	0.065	
Tin solid	7.27	0.052	232
Solder(Sn-Pb5%)	8.92	0.051	182
Aluminum	2.71	0.240	643
Cement board	1.94	0.250	
Brickwork	2.10	0.220	
Asphalt	2.10	0.400	
Molybdenum	10.21	0.071	2621
Mica	2.82	0.210	
Paraffin	0.88	0.690	56
Steatite	2.60	0.200	
Teflon	2.15	0.250	
Platinum	21.45	0.035	1773
Phenolic	1.27	0.400	
Monel 400	8.82	0.110	1315
Tantalum	16.60	0.035	2996
Tungsten	19.30	0.040	3410

Zinc	7.17	0.096	419
Titanium	4.53	0.130	1668
Sulfur	2.07	0.175	119
Zirconium	6.47	0.067	1848

Contact

Taipei World Trade Center

Add: 3C25, Taipei World Trade Center, No. 5, Sec. 5, Hsin Yi Rd. Taipei Taiwan, R.O.C.

Tel: 886-2-27206601 (Rep.)

Fax: 886-2-23455120

E-mail: gitta@ms9.hinet.net

<http://www.maxthermo.com>

Factory

Add: 11F., No.168, Jiankang Rd., Zhonghe Dist, New Taipei City 235, Taiwan (R.O.C.)

Tel: 886-2-22287950 (Rep.)

Fax: 886-2-22286140

Thailand Office - TAI MAXIMUM ELECTRONIC CO., LTD

Add: 86/132-133 m.7 Samaedum Bangkoontien Bangkok 10150 Thailand.

Tel: +662-415-8318 , +662-417-2548-49

Fax: +662-415-8798

<http://www.thaimaximum.com>