# Low Density Cartridge Heaters



# An Economical and Reliable Cartridge Heater, Used in Applications Requiring Lower Operating Temperatures and Watt Densities



#### **Typical Applications**

- Heat Sealing Equipment
- Laminating Equipment
- Packaging Equipment
- Labeling Machines
- Molds and Dies
- Food Processing
- Refrigeration
- Shoe Machinery
- Glue Guns
- Wax Pots
- Heating Liquids
- Heating Gases

Low-density cartridge heaters are an excellent, cost effective choice without compromising quality for Original Equipment Manufacturers (OEMs) consuming large quantities of cartridge heaters for their equipment.

### **Standard Specifications** and Tolerances

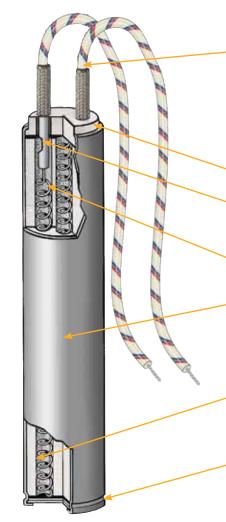
#### **Performance Ratings**

Maximum Temperature: 650°C (1200°F)

#### **Maximum Watt Density:**

3.1 to 7.0 Watt/cm2 (20 to 45 Watt/in2) depending on heater size and

operating temperature



The standard termination for low-density cartridge heaters is Type F, consisting of 254 mm (10") internally connected flexible lead wires with high temperature insulation, UL approved for 300 or 600V service and temperature rated to 250°C (482°F).

Note: To meet the requirements of your application we offer over 40 standard termination styles to select from that will solve many of the most common application

Ceramic end cap protects the cartridge internally from outside contamination.

Resistance wire and lead wires are mechanically spliced with heavy wall nickel connectors for a positive electrical connection.

Helically wound Nickel-Chrome resistance wire is evenly stretched and strung through ceramic insulators.

Alloy 304 stainless steel is used to provide high temperature strength, good thermal conductivity and resistance to oxidation up to 650°C (1200°F). Alloy 304 is a Nickel-Chromium stainless steel. For immersion heating of corrosive solutions contact OMEGA.

Specially selected grain size high purity Magnesium Oxide (MgO) is used to fill all remaining space inside the ceramic insulator, thus increasing thermal conductivity, dielectric strength and heater life.

Sheath is roll crimped over a 304 stainless steel end disc. A mica spacer electrically insulates the heater core from the end disc. This style end seal is not moisture proof.

## **Dimensional Specifications**

| Difficitional opecific | cations  |       |       |       |       |       |       |                               |       |                       |  |
|------------------------|--|-------|-------|-------|-------|-------|-------|-------------------------------|-------|-----------------------|--|
| Nominal Diameter       | 3/16   | 1/4   | 3/8   | 1/2   | 5/8   | 3/4   | 7/8   | <sup>15</sup> /16             | 1     | 11/4                  |  |
| Actual Diameter inch   | 0.185  | 0.247 | 0.372 | 0.496 | 0.621 | 0.745 | 0.870 | 0.933                         | 0.995 | 1.250                 |  |
| Actual Diameter mm     | 4.70   | 6.27  | 9.45  | 12.60 | 15.77 | 18.92 | 22.10 | 23.70                         | 25.27 | 31.75                 |  |
| Diameter Tolerance     | 0.051 mm (±0.002")   |       |       |       |       |       |       |                               |       | 0.127 mm<br>(±0.005") |  |
| Length Tolerance       | 1.59 mm (±½6") up to 152 mm (6") long; 3.18 mm (±½") over 152 mm (6") long |       |       |       |       |       |       |                               |       |                       |  |
| Camber Tolerance       | 0.254 mm (0.010") per foot of length                                       |       |       |       |       |       |       |                               |       |                       |  |
| Electrical Specificati | ions   |       |       |       |       |       |       |                               |       |                       |  |
| Nominal Diameter       | 3/16   | 1/4   | 3/8   | 1/2   | 5/8   | 3/4   | 7/8   | <sup>15</sup> / <sub>16</sub> | 1     | 11/4                  |  |
| Maximum Voltage        | 240  | 240   | 240   | 240   | 480** | 480** | 480** | 480**                         | 480** | 480**                 |  |
| Maximum Amperage       | 1.5  | 3.5   | 6     | 8     | 10    | 15    | 15    | 15                            | 25    | 30                    |  |
| Maximum Wattage        | Contact OMEGA  |       |       |       |       |       |       |                               |       |                       |  |
| Wattage Tolerance      | Plus 5%, minus 10%   |       |       |       |       |       |       |                               |       |                       |  |
| Resistance Tolerance   | Plus 10%, minus 5%   |       |       |       |       |       |       |                               |       |                       |  |

<sup>\*</sup>Low density cartridge heaters are UL recognized and CSA certified in many design variations under UL File Number E65652 and CSA File Number 043099. If you require UL and/or CSA Agency Approval, please specify when ordering.

<sup>\*\*480</sup>V when applicable. Contact OMEGA.



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%" Diameter, Actual 9.45 mm (0.372")

| To Order Visit omega.com/ldc3 for Pricing and Details |          |        |        |       |                      |                      |  |  |  |
|---|----------|--------|--------|-------|----------------------|----------------------|--|--|--|
| Model No.   |          | Sheath | Length |       | Watt Density         |                      |  |  |  |
| 120V  | 240V     | mm     | inch   | Watts | Watt/cm <sup>2</sup> | Watt/in <sup>2</sup> |  |  |  |
| LDC00033  | _        | 38.1   | 1½     | 15    | 2.0                  | 13                   |  |  |  |
| LDC00034  | _        | 38.1   | 1½     | 40    | 5.3                  | 34                   |  |  |  |
| LDC00035  | _        | 50.8   | 2      | 50    | 4.4                  | 28                   |  |  |  |
| LDC00036  | _        | 63.5   | 21/2   | 75    | 4.9                  | 32                   |  |  |  |
| LDC00037  | _        | 63.5   | 21/2   | 100   | 6.6                  | 42                   |  |  |  |
| LDC00038  | _        | 76.2   | 3      | 100   | 5.3                  | 34                   |  |  |  |
| LDC00039  | LDC00040 | 88.9   | 31/2   | 120   | 5.3                  | 34                   |  |  |  |
| LDC00041  | LDC00042 | 101.6  | 4      | 75    | 2.8                  | 18                   |  |  |  |
| LDC00043  | LDC00044 | 101.6  | 4      | 130   | 4.9                  | 32                   |  |  |  |
| LDC00045  | LDC00046 | 101.6  | 4      | 150   | 5.6                  | 36                   |  |  |  |
| LDC00047  | LDC00048 | 101.6  | 4      | 180   | 6.8                  | 44                   |  |  |  |
| LDC00049  | LDC00050 | 114.3  | 41/2   | 75    | 2.5                  | 16                   |  |  |  |
| LDC00051  | LDC00052 | 114.3  | 4½     | 150   | 4.9                  | 32                   |  |  |  |
| LDC00053  | LDC00054 | 127.0  | 5      | 150   | 4.4                  | 28                   |  |  |  |
| LDC00055  | LDC00056 | 127.0  | 5      | 200   | 5.8                  | 38                   |  |  |  |
| LDC00057  | LDC00058 | 139.7  | 5½     | 200   | 5.3                  | 34                   |  |  |  |
| LDC00059  | LDC00060 | 152.4  | 6      | 225   | 5.4                  | 35                   |  |  |  |
| LDC00061  | LDC00062 | 152.4  | 6      | 250   | 6.0                  | 39                   |  |  |  |
| LDC00063  | LDC00064 | 177.8  | 7      | 200   | 4.0                  | 26                   |  |  |  |
| LDC00065  | LDC00066 | 177.8  | 7      | 265   | 5.4                  | 35                   |  |  |  |
| LDC00067  | LDC00068 | 203.2  | 8      | 300   | 5.3                  | 34                   |  |  |  |
| LDC00069  | LDC00070 | 228.6  | 9      | 350   | 5.4                  | 35                   |  |  |  |
| LDC00071  | LDC00072 | 241.3  | 9½     | 300   | 4.4                  | 28                   |  |  |  |
| LDC00073  | LDC00074 | 254.0  | 10     | 375   | 5.2                  | 34                   |  |  |  |
| LDC00075  | LDC00076 | 304.8  | 12     | 425   | 4.9                  | 31                   |  |  |  |
| LDC00077  | LDC00078 | 304.8  | 12     | 450   | 5.1                  | 33                   |  |  |  |
| LDC00079  | LDC00080 | 304.8  | 12     | 475   | 5.4                  | 35                   |  |  |  |
| LDC00081  | LDC00082 | 304.8  | 12     | 500   | 5.7                  | 37                   |  |  |  |
| LDC00083  | LDC00084 | 355.6  | 14     | 500   | 4.9                  | 31                   |  |  |  |
| LDC00085  | LDC00086 | 406.4  | 16     | 550   | 4.7                  | 30                   |  |  |  |
| LDC00087  | LDC00088 | 508.0  | 20     | 200   | 1.3                  | 9                    |  |  |  |
| LDC00089  | LDC00090 | 508.0  | 20     | 650   | 4.4                  | 28                   |  |  |  |
| _   | LDC00091 | 558.8  | 22     | 800   | 4.9                  | 32                   |  |  |  |
| _   | LDC00092 | 609.6  | 24     | 750   | 4.2                  | 27                   |  |  |  |

Note: Model numbers above are for low density cartridge heaters terminated with Type F flexible leads, 254 mm (10") long. Ordering Example: LDC00069, 350 W, 120 Vac, cartridge heater.

Order by model number from the standard sizes and ratings list on the preceding pages. Note that model numbers shown are for heaters with Type F Termination [254 mm (10") leads].

#### **Custom Engineered/Manufactured Heaters**

Because an electric heater can be very application specific, for sizes and ratings not listed, OMEGA will design and manufacture a low-density cartridge heater to meet your requirements.

## Please Specify the Following:

- Diameter
- Termination Types

- Length Wattage Voltage
- Lead Length
- Cable/Braid Length
- Special Features
- Application Type
- Operating Temperature