

K - R I N G[®] H E A T E R S

Innovative Design Takes Nozzle Heater Technology A Step Ahead



K-RING[®]

Watlow's K-RING[®] heater takes nozzle heater technology a step ahead of the competition. Thanks to its innovative design, plastic molders no longer have to compromise with sloppy fit tolerances, uneven temperature profiles or short heater life.

Featuring a machine brass casting construction, the K-RING heater can handle very high temperatures while providing maximum heat transfer.

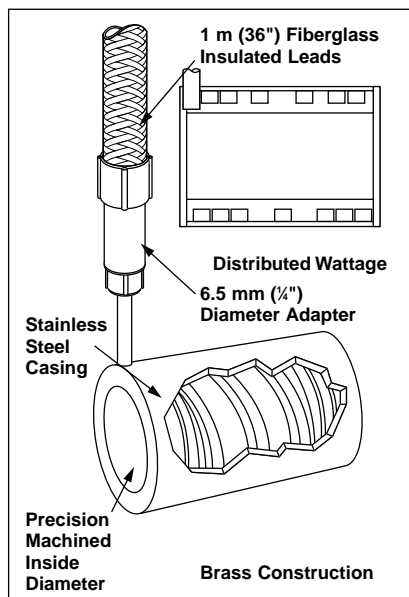
Mini K-RING[®]

Watlow's Mini K-RING[®] heater is ideal for applications where space is limited such as high cavity hot runner molds. This nozzle heater allows for closer pitch by fitting easily into the small area while providing precision heat and efficiency.

The Mini K-RING heater features highly flexible unheated ends that give the customer the ability to form leads to the wire channel. The unit also contains small lead adapters that use less space in the hot runner system.

Heater Design

With a precision machined inside diameter, the K-RING and Mini K-RING heaters fit perfectly – and do not require additional clamping methods. Precision fit, along with the excellent thermal conductivity of brass, allows the K-RING and Mini K-RING to provide an extremely even temperature profile.



Features and Benefits

Brass casting construction

- Protects the heater from damage, as well as maximizes transfer of heat to heated parts
- No deformation or "shortening" of the heater due to plastics overflow

Precision machining of length and inside diameter

- Provides exacting fit tolerances

Sealed construction

- Eliminates contamination

Stainless steel outer casing

- Protects the brass heater body, and as an option, the K-RING can be polished to increase heater efficiency

Distributed wattage

- Allows heat to be precisely placed for an even temperature profile

Customized diameters

- Available to meet specific application needs



BAT-KRING-1001

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K - R I N G[®] H E A T E R S

Performance Capabilities

- Operating temperature to 650°C (1200°F)
- K-RING maximum density on inside diameter to 40 W/cm² (260 W/in²)
- Mini K-RING maximum density on inside diameter to 50 W/cm² (320 W/in²)
- Maximum voltage to 240V~(ac)

Applications

- Sprue bushings in plastic molding equipment
- Plastic injection nozzles
- Process heating of liquids and gasses in processing lines
- Hot melt equipment
- Laboratory and analytical equipment

Electrical Tolerances

Resistance: ±10 percent

Wattage: ±10 percent

K-RING Termination Options

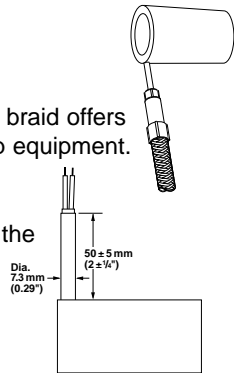
Termination options are not available for the Mini K-RING.

Protection Against Abrasion

Crimped-on fiberglass braid or stainless steel braid offers lead wire protection against abrasion or sharp equipment.

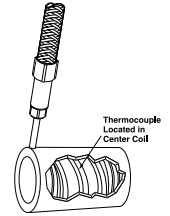
Heavy Duty Strain Relief

A heavy-duty stainless steel tube is added to the cable transition of the K-RING, providing strain relief to the lead exit.



Internal Thermocouple

Internally grounded **Type J** or **Type K** thermocouples offer accurate sensing of internal heater temperatures. Thermocouple wires attach directly to a Watlow controller, which can be purchased separately.



Thermocouples are supplied with 1 m (36 in) fiberglass insulated leads. Upon request, longer lead lengths are available.

How to Order

To order your stock K-RING heater, specify:

- Required inside diameter
- Maximum allowable outside diameter
- Maximum allowable length of the K-RING
- Voltage and wattage
- Wattage distribution
- Lead length, protection and thermocouple type if other than standard
- Any of the options required

To order your Mini K-RING heater, specify:

- I.D.
- Maximum possible O.D.
- Length
- Voltage and wattage
- Unheated lead end
- Lead exit
- Lead length
- Wattage distribution

K-RING[®] and Mini K-RING[®] Comparison Chart

Characteristic	K-RING	Mini K-RING
Maximum voltage	240 volts	240 volts
Maximum amperage	4.5 amps	2.0 amps
Minimum outer diameter	18 mm (0.70 in.)	10 mm (0.39 in.)
Minimum wall thickness	4 mm (0.16 in.)	2.5 mm (0.10 in.)
Maximum element length	I.D. up to 12 mm (0.47 in.) Length = 100 mm (4 in.) I.D. 12 to 20 mm (0.47 - 0.80 in.) Length = 200 mm (8 in.) I.D. > 20 mm (0.80 in.) Length = 300 mm (12 in.)	I.D. up to 10 mm (0.39 in.) Length = 60 mm (2.40 in.) I.D. > 10 mm (0.39 in.) Length = 100 mm (4 in.)
Thermocouple	Internal Type J or K	External possible
Lead - T/C insulation	Fiberglass Teflon [®]	Fiberglass Teflon [®]
Lead protection	Fiberbraid Stainless steel braid Stainless steel hose	None
Lead adapter	Standard swaged 6.5 mm (0.25 in.) diameter	Hermetic seal 3 mm (0.12 in.) diameter
Lead exit	Single ended	Dual ended
Lead exit length	Standard = 25 mm (1 in.) to adapter longer possible upon request	Standard = 100/150 mm (4 to 6 in.) staggered Longer or shorter possible upon request
Reinforced lead exit	Yes - Diameter 7.4 mm (0.29 in.) minimum 50 mm (2 in.) long	No
Wattage tolerance	±10 percent	±10 percent