

### Cartridge Heater With Built-In Internal Thermocouples

**Built-in Internal Thermocouples are available on all HDC, HDM, and LDC cartridge heater diameters except for 3/16", 5/16" and 8 mm.**



**Notes:** Type TJ4 and TK4 are not available on 1/4" and 6.5 mm diameter cartridges.

**Minimum sheath length:** 3" for 1/4", 3/8" and 1/2" diameter. 4" for 5/8" and 3/4" diameter.

10" leads are standard for both heater and thermocouple. Leads are internally connected. Specify longer leads.

ANSI Code	Conductor Characteristics		Temperature Range	
	Positive	Negative	°F	°C
J	Iron (Magnetic)	Constantan (Non-Magnetic)	0 to 1400	-17 to 760
K	Chromel (Non-Magnetic)	Alumel (Magnetic)	0 to 2300	-17 to 1260

For other thermocouple types consult Tempco.

Type TJ1 and TK1



#### Type TJ1 and TK1 Grounded at Disc End

The thermocouple junction is grounded to the sheath at the disc end and packed with MgO. The concave end disc is filled with silver solder and ground flat. When inserted into a flat end blind hole, it will provide fast responsive temperature readings. Widely used in Hot Runner mold probes.

**TJ1** Type J thermocouple; **TK1** Type K thermocouple

Type TJ2 and TK2



#### Type TJ2 and TK2 Ungrounded at Disc End

The thermocouple junction is ungrounded, located at the end of the heater section, 1/8" behind the end disc and packed with MgO. Only provides reference temperature reading of the part being heated – slower response.

**TJ2** Type J thermocouple; **TK2** Type K thermocouple

Type TJ3 and TK3



#### Type TJ3 and TK3 Ungrounded at Center

The thermocouple junction is ungrounded and is located in the center of the length and diameter of the cartridge heater. It provides internal temperature readings of the heater core. Generally used for research applications and is not recommended for controlling process temperatures.

**TJ3** Type J thermocouple; **TK3** Type K thermocouple

Type TJ4 and TK4



#### Type TJ4 and TK4 Grounded at Center

The thermocouple junction is grounded to the sheath in a 1/2" unheated section located in the center of the cartridge length unless otherwise specified. It provides good temperature readings with quick response.

**TJ4** Type J thermocouple; **TK4** Type K thermocouple

Type TJ5 and TK5



#### Type TJ5 and TK5 Grounded at Lead End

The thermocouple junction is grounded to the sheath at the lead end. A minimum of 3/8" of cold section is required. It provides good temperature readings with quick response.

**TJ5** Type J thermocouple; **TK5** Type K thermocouple



**Note:** For a complete selection of standard Hi-Density Pennybottom™ Cartridge Heaters, with built-in Type J thermocouple for Hot Runner plastic molds, see pages 2-24 through 2-26.

**Available from stock.**