



## Which Cartridge Heaters to Choose From

Knowing which cartridge heater to use to maximize your efficiency can be difficult. Heater life, start up time, process temperatures, durability, size and cost all play an important role in choosing the right heater. We have put this tech tip together to help you in this process. Keep in mind these are guidelines and that every application will have it's own set of unique challenges. Please consult your Proheat account manager with any questions concerning your application.

	Hi-Density	Low Density	Hot Runner	Split Sheath	Immersion
Max Watt Density	400 W/in <sup>2</sup>	30 W/in <sup>2</sup>	150 W/in <sup>2</sup>	400 W/in <sup>2</sup>	80 W/in <sup>2</sup>
Max Part Temp	1400° F	1000° F	900° F	1400° F	N/A
Min/Max Diameter	1/8" to 1-1/4"	3/16" to 1-1/4"	1/8" to 1"	1/4" to 1"	1/4" to 1-1/4"
Min/Max Length	1" to 72"	1" to 120"	1" to 72"	1-1/4" to 90"	2" to 72"



Hi-Density

Hi-Density cartridge heaters are the workhorse of the industry. Good for high temperature applications and are readily available from stock in many sizes and many voltage/wattage combinations. The compacted or "swaged" MgO insulation allows for high watt densities.



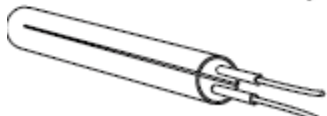
Low Density

Low Density heaters are good for low to mid temperature applications and are less costly than Hi-Density. The construction style of a low density heater requires very low watt densities; however, they do have the largest length capacity.



Hot Runner

Hot Runner cartridge heaters are hi-density heaters with an internal thermocouple (generally type J or K). The thermocouple can be placed at the lead end, disc end, in the middle, or attached to the sheath.



Split Sheath

Split Sheath cartridge heaters are split down the middle. The design allows for expansion into the bore providing better heat transfer. They are warranted removable. They are good for high temperature, high watt density applications. They have longer lead times than Hi or Low Density heaters.



Immersion

Immersion cartridge heaters are hi-density heaters with an NPT fitting brazed to the sheath and are good for small tank heating applications. They work well for lower temperature, and lower watt density applications where a standard immersion heater will not fit.



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