

Electrical Components

Die-Pat Divisions Limited Electrical Components brochure covers a vast range of heat lamps, heaters, thermostats, energy regulators, elements, heater pads and hot plates as detailed below. We have a large amount of stock available for immediate delivery.

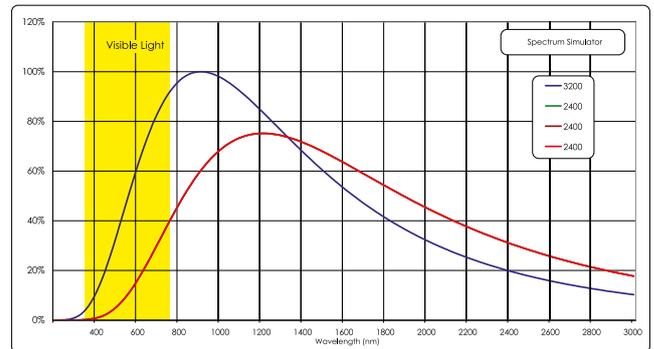
Infrared Low Pressure Heat Lamps

What is Infrared (IR) radiation?

Infrared radiation is part of a broad electromagnetic spectrum, its wavelength is longer than that of visible light but shorter than that of microwave radiation and passes through space in the form of electromagnetic waves. Like light it can be reflected and focused and does not require air for transmission and is converted to heat upon absorption by the subject which is a safe process.

What is a Halogen lamp?

A Halogen lamp is a gas filled filament lamp. Its gas consists of not only inert gas, which is commonly used in gas filled lamp technology, but also a trace of Halogen material. Conventional incandescent lamps lose their flux gradually during operation due to tungsten vapour deposits condensing on the inner bulb surfaces (blacking phenomenon). Infrared lamps do not suffer this because of the Halogen cycle that increases the life of the lamp. Halogen gas is added to the inert gas in the lamp and as the heater operates, tungsten slowly evaporates from the filament and combines with the halogen to create tungsten halide. As the tungsten halide touches the filament, the heat separates the halide into tungsten and halogen gas and re-deposits the tungsten back on the filament. The freed halogen gas then repeats the cycle.



The high density infrared tungsten wire filament in the lamp produces energy and this wire comes in different diameters according to the output required, and is supported by tungsten wire rings. The support prevents the filament from coming into contact with the quartz envelope and causing it to fail. The exterior of the quartz glass must be cleaned before any power is supplied to the lamp, as any residue or salt deposit (perspiration) on the envelope will absorb energy or react with the quartz and cause premature lamp failure.

Try various temperature

Theoretical Power Spreads in UV/VR/IR

Wavelength nm	Tc : Color Temperature (K)				
	3200	2400	2400	2400	
- 380	0%	0%	0%	0%	UV
380 - 780	16.5	5.2%	5.2	5.2%	VR
780 - 1,000	16%	9%	9%	9%	IR
1,000 - 1,500	29%	26%	26%	26%	
1,500 - 2,000	16%	20%	20%	20%	
2,000-	23%	39%	39%	39%	
TTL	100%	100%	100%	100%	
Peak Wavelength nm	906	1,208	1,208	1,208	

$$\text{Peak wavelength } \lambda \text{ [nm]} = 2898000 / Tc \text{ [K]}$$

where Tc = Color temperature in Kelvin



The rated life for short 300w R7 infrared heat lamps is 5000 hours and has a colour temperature of 2200 Kelvin as against the high colour temperature bulbs being over 3400 Kelvin having a lot shorter life span. Die-Pat's short bulbs 118mm are all low pressure and even when operating will stay below 1 bar pressure but some of the high colour temperature bulbs can attain pressures of 2.5 bar. All our lamps are rated at 230/240 volts, operating lamps in excess of the rated voltage will reduce the lamp life.