

# **Fast heating**

## **Far-infrared Point Heater**

### **FPH Series**



- ◆ Ultra-compact.
- ◆ Clean.
- ◆ Stable radiation characteristics.
- ◆ Rising is early, so heating time can be reduced.
- ◆ This is a far-infrared radiation, so this is good at heating of glass.

# **Heat-tech**

◆ Ultra-compact FPH-30 Series

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[ FPH-30 Series ]

It is ultra-compact with a diameter of  $\Phi 30\text{mm}$  x height 40mm.  
It can be installed in the gap of the machine.  
Focus diameter is two types of  $\Phi 3$  and  $\phi 5$ .

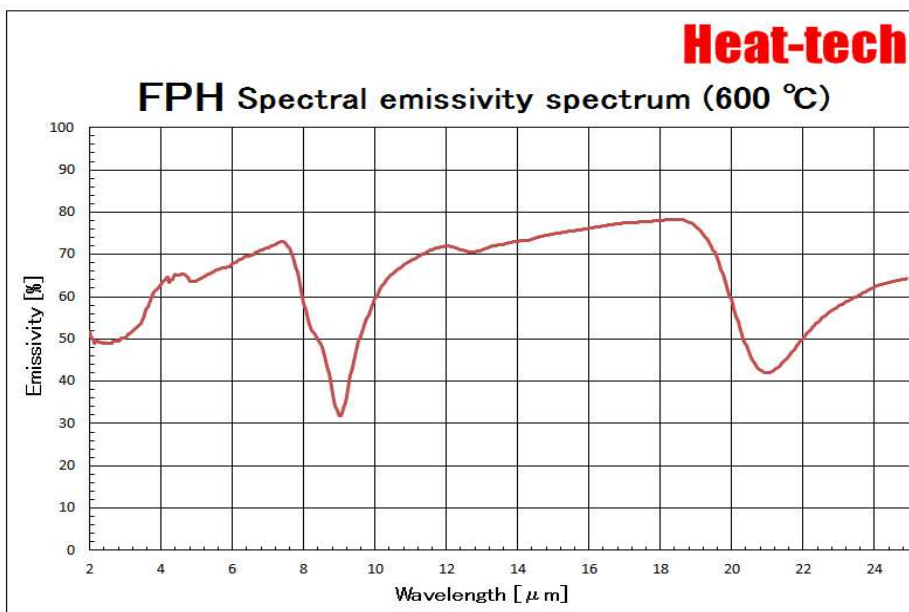
◆ Clean.

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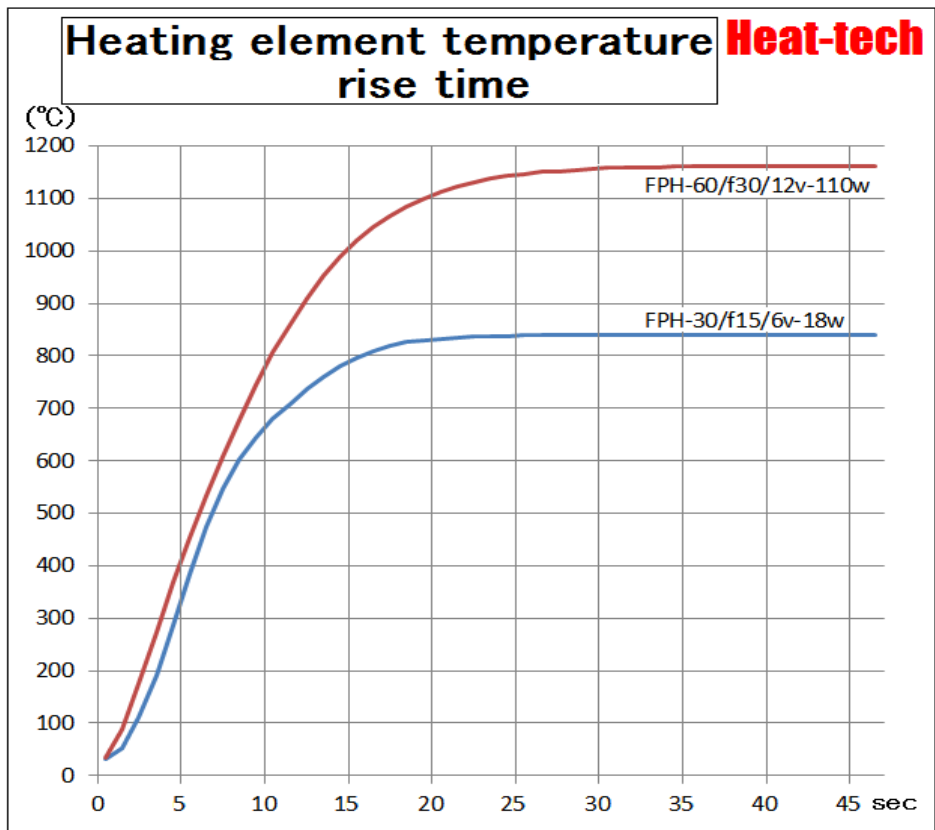
It's medium-less by non-contact heating, so it can be heated very cleanly.

◆ Stable radiation characteristics.

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◆ Rising is early, so heating time can be reduced.



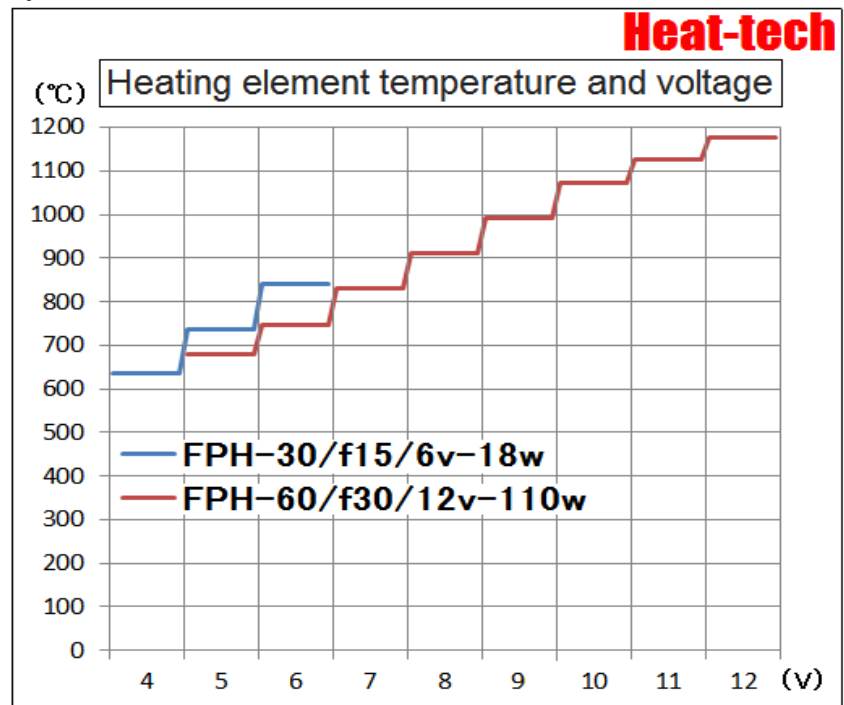
This heater reach the high temperature of 800 °C in only 15 sec.

◆ Frequency management of heating element can be done.

By adjusting the temperature of the heating element, it is possible to manage the far-infrared rays of the peak frequency.

Black body radiation energy

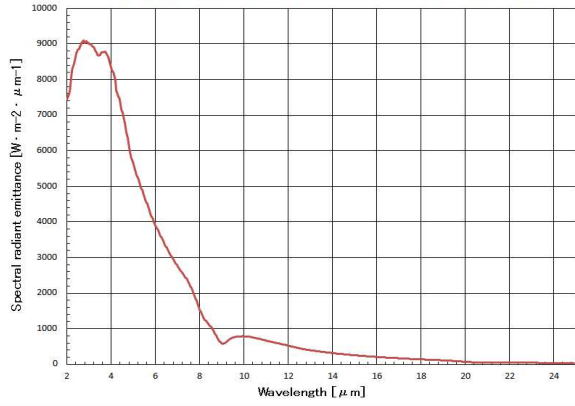
Temp.	Peak wavelength
800°C	2.70 μm
700°C	2.98 μm
600°C	3.32 μm
500°C	3.75 μm
400°C	4.31 μm
300°C	5.06 μm
200°C	6.13 μm
100°C	7.77 μm



※ It also reduces the transfer (radiation) energy and lower the temperature.

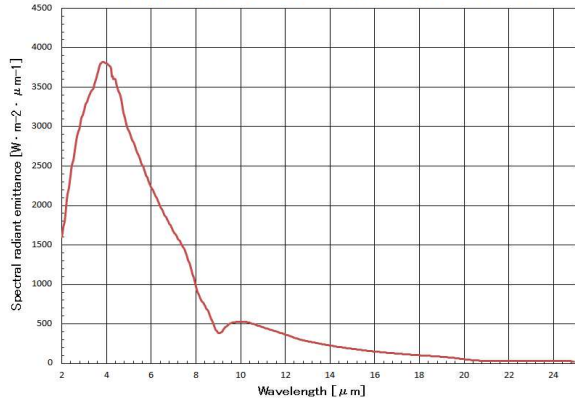
### Heat-tech

#### FPH Spectral radiant emittance (800 °C)



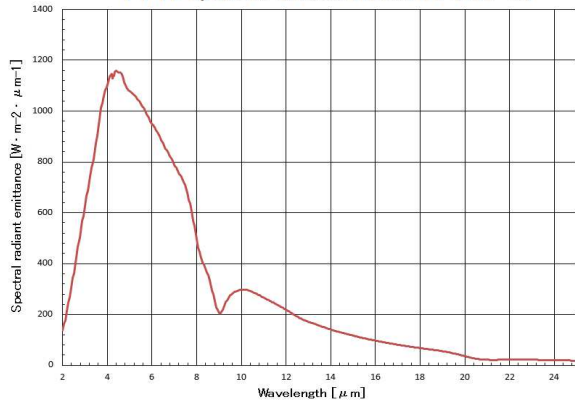
### Heat-tech

#### FPH Spectral radiant emittance (600 °C)



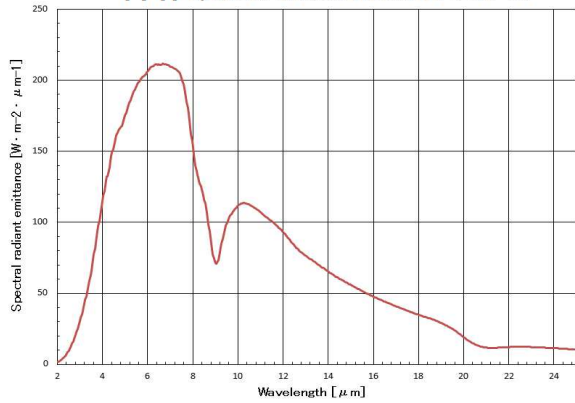
### Heat-tech

#### FPH Spectral radiant emittance (400 °C)



### Heat-tech

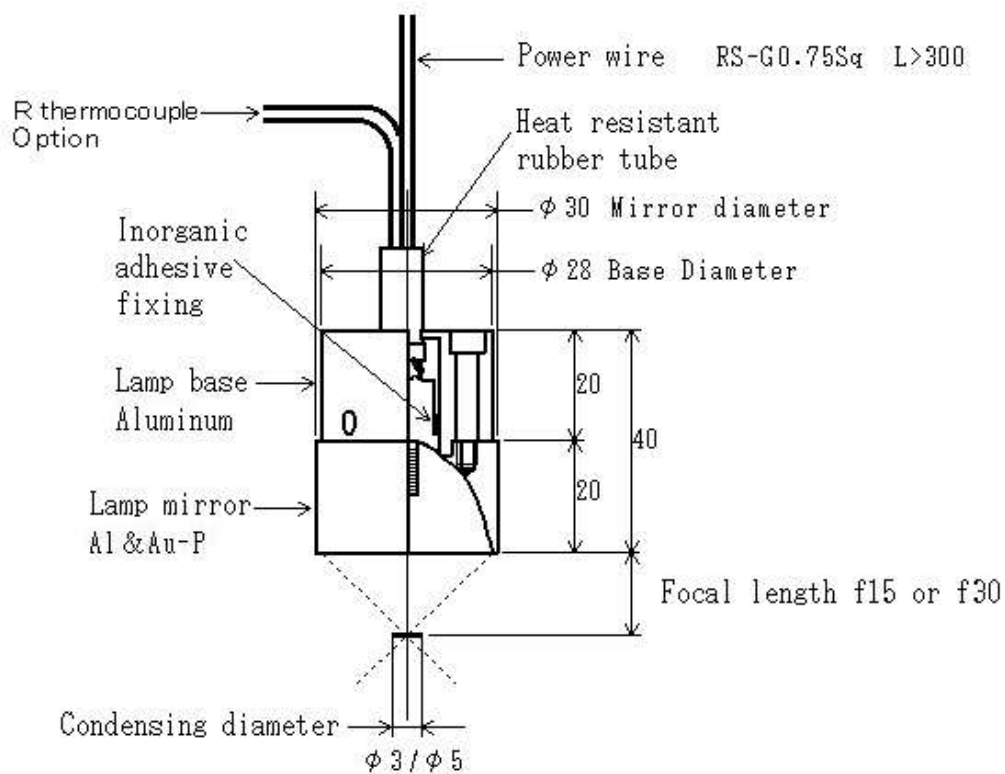
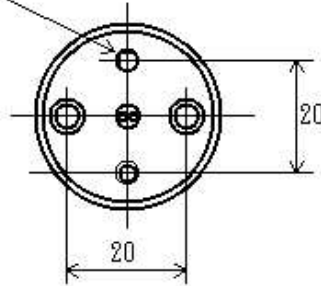
#### FPH Spectral radiant emittance (200 °C)



### Model configuration

Basic	Mirror diameter	Cooling method	Focal length	Voltage	output	Thermo couple	Water cooling	Power wire	Detailed description
FPH-	□	□	/f□	□v-	□w	/R	/□	/P□m	
	30								DiameterΦ30
	60								DiameterΦ60
		blank							Natural cooling
		A							Air cooling
			f15						15mm
			f30						30mm
				6v					Voltage 6v
				12v					Voltage 12v
					18w				output 18w
					110w				output 110w
						blank			
						R			R-type thermocouple
							blank		
							WCU-30		Water cool unit Φ30
							WCU-60		Water cool unit Φ60
								P1 m	Power wire 1 m
								P( )m	Designated length

2-M4F Depth 8mm  
Use for Mounting



**(Caution)**

- (1).The temperature is a higher as a short focus.
- (2).The focus diameter is a diameter of the orientation center. About 1/3 of the electricity is condensed.
- (3).The infrared rays are distributed around the focus diameter.
- (4).When the surface temperature of the heater exceeds 160°C, cooling is necessary.

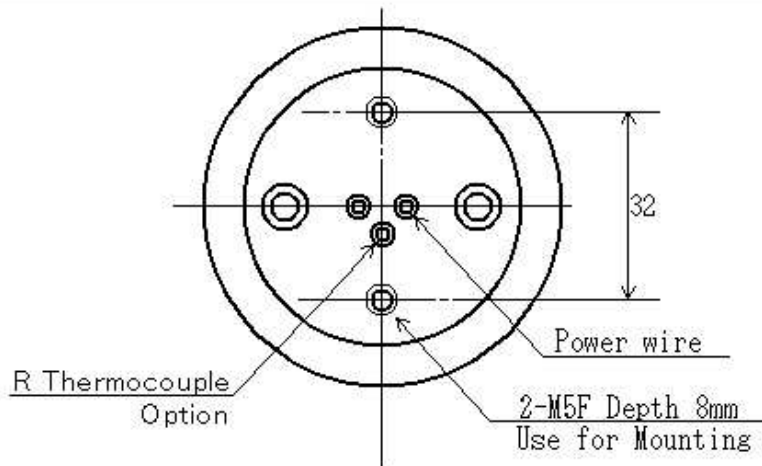
**【 Option & Special order 】**

Specified power supply line

Focus	15mm	30mm
Diameter	$\phi 3$	$\phi 5$
Volt-Power	AC/DC 6v-18w	
Mass	approx.65g	
Water Cooling	Option	
Hood	Option	
D/#	FPH-30/f□/6v-18w	
Model	Far-infrared point heater	

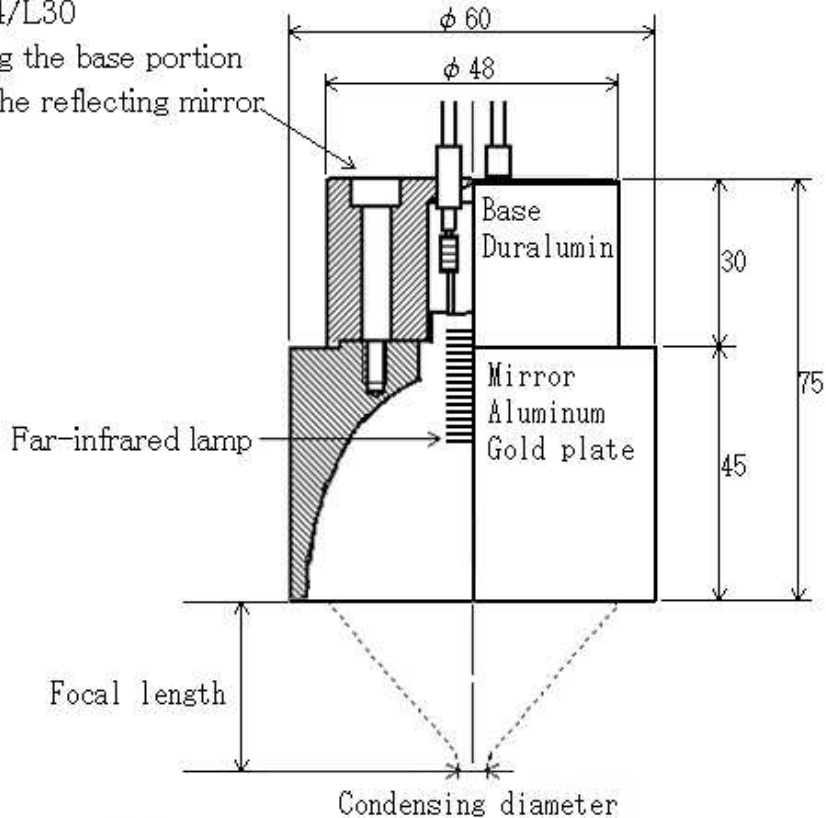
Date	2016/8/30	Design	Y.shimoda
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2-M4/L30

Fixing the base portion and the reflecting mirror



**(Caution)**

- (1).The temperature is a higher as a short focus.
- (2).The focus diameter is a diameter of the orientation center. About 1/3 of the electricity is condensed.
- (3).The infrared rays are distributed around the focus diameter.
- (4).When the surface temperature of the heater exceeds 160°C, cooling is necessary.

**【 Option & Special order 】**

Specified power supply line

Focus	30mm	60mm	105mm
Diameter	Φ10	Φ18	Φ25
Volt-Power	AC/DC 12v-110w		
Mass	approx.330g		
Water Cooling	Option		
R Thermocouple	Option		
D/#	FPH-60/f□/12v-110w		
Model	Far-infrared point heater		

Date	2016/8/30	Design	Y.shimoda
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No-touch High Temperatures Hating

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