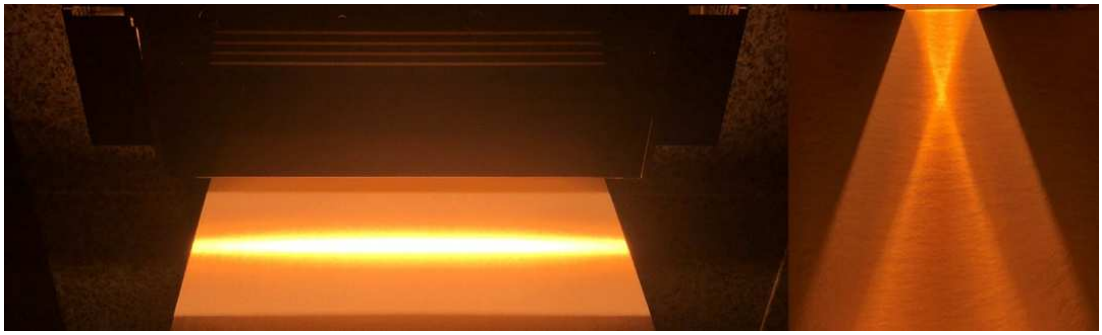
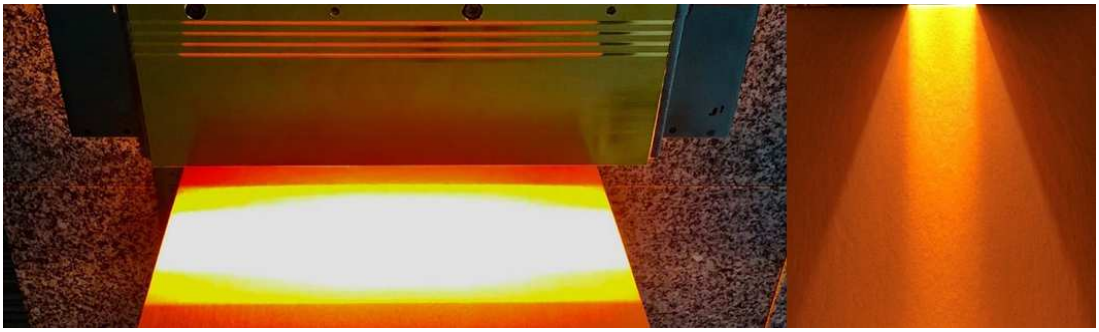
High-speed Heating
Halogen Line Heater
HLH series



<< Line Heating Type >>



<< Plane Heating Type >>

Heat-tech **5.21th edition**

Heat-tech

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10 Ultra small HLH-30 series for line heating
11 Ultra small HLH-35 series for plane heating
12 High power HLH-40 series for plane heating (coming soon)
13 High power HLH-40 series for plane heating
14 High power HLH-55 series for line heating
15 High power HLH-60 series for plane heating
16 High power HLH-65 series for line heating

Ⅲ Halogen Line Heater Laboratory-kit

17 LKHLH-35A/f∞/100V-1kW +HCVD
18 LKHLH-55A/f25/200V-2kW + HCVD
19 LKHLH-60A/f∞/200V-2kW + HCVD

Ⅳ Heater Controller

20 Manual power controller HCV
21 High-performance Heater Controller HHC2 series
22 Stepset Controller Profile-maker SSC series
23 Power Cable for Heater Controller

1 Handling Precautions

1) Strong light is harmful to the eyes.
There is a risk of blindness when looking straight at the halogen light.
Please protect eyes with thick sunglasses etc.

2) When the electric current flow or heating, please avoid touching the hand to the heater.
For high temperatures, user may get burned.

3) Please ground the furnace casing and the frame.

4) The maximum working temperature of HLH series is 160 ℃.
If user live more than 30 seconds may not exceed the specified temperature, please do the cooling.

5) HLH series are not explosion proof.
If experiencing explosive flammable gas when heated and dried, please do ventilation to safely.

6)Please do not touch the heating object to the HLH series while the electric current flow
There is a possibility of the leak and the ignition according to the short.

6)Please use the heat resistance wires such as the glass coating silicon rubber insulation electric wire ,
Siegel line or the Teflon coating electric wires for the in-furnace wiring.

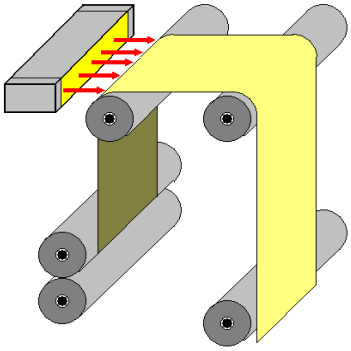
7)The halogen light is not good at the check with eyes of generation of heat.
Please confirm the temperature of the heater and the heating object with the thermometer.

8) Halogen light is the straight like sunlight, only direct exposure has effect on the object to be dried or heated.
According to the shape of the work, while turning and rotation reversal, please halogen light shines so uniformly

9)Deterioration on the mirror side causes a remarkable performance decrease.
Please soak solvents such as alcohol and benzene into a soft cloth and wipe the dust on the mirror side off lightly

Applications of Halogen Line Heater Heat-tech

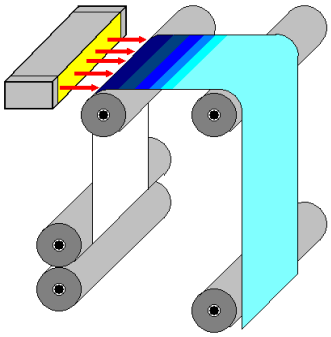
■No.1 Moisture control of paper-forming process



《 Problem Point 》
Had trouble with slow rise of the heater.

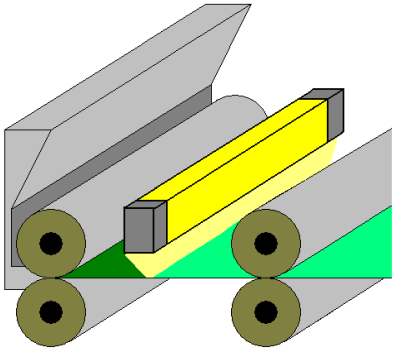
《 ⇒Kaizen Point 》
Moisture flew with the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.2 Dryness of medicine of paper-forming process



《 Problem Point 》
Had trouble to difficult temperature management of the heater.
《 ⇒Kaizen Point 》
It was dry with the Halogen Line Heater.
The quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

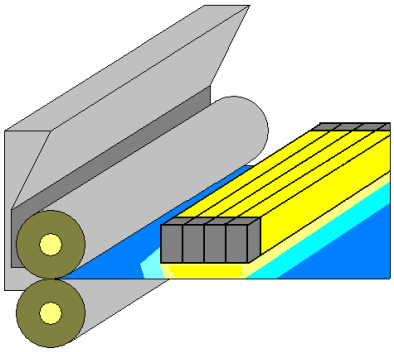
■No.3 Dryness of paper-coating process



《 Problem Point 》
Had trouble without the location of the heater.

《 ⇒Kaizen Point 》
It was dry with 2M one Halogen Line Heater.
Strong light, enough output was able to be secured even in the small place.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady.
In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.4 Curing of gravure offset printing

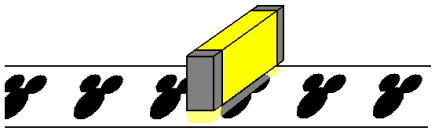


《 Problem Point 》
Had trouble to low power of the heater.

《 ⇒Kaizen Point 》
It has cured by using 4 Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady.
In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

Applications of Halogen Line Heater Heat-tech

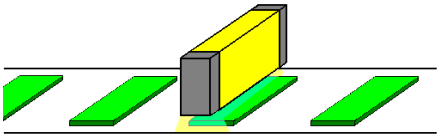
■No.5 Dryness of silk screen print



《 Problem Point 》
Had trouble to difficult temperature management of the heater.

《 ⇒Kaizen Point 》
It was dry with the Halogen Line Heater. The quality has improved because the temperature steady by the voltage regulation was able to manage. Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady.
In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

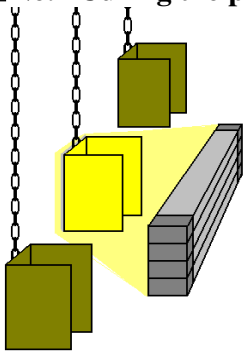
■No.6 Dryness of paints



《 Problem Point 》
Had trouble to difficult temperature management of the heater.

《 ⇒Kaizen Point 》
It was dry with the Halogen Line Heater. The quality has improved because the temperature steady by the voltage regulation was able to manage. Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady.
In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

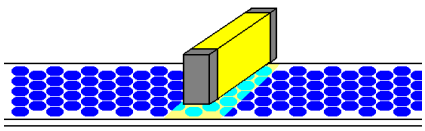
■No.7 Curing the powder coating drying process



《 Problem Point 》
Had trouble to difficult temperature management of the heater.

《 ⇒Kaizen Point 》
It was dry with the Halogen Line Heater. The quality has improved because the temperature steady by the voltage regulation was able to manage. Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady.
In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

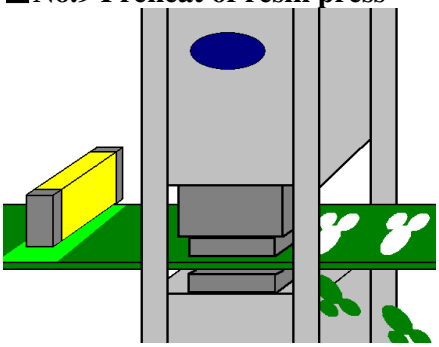
■No.8 Dryness of resin pellet



《 Problem Point 》
Had trouble to difficult temperature management of the heater.
《 ⇒Kaizen Point 》
It was dry with the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the kind of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

Applications of Halogen Line Heater Heat-tech

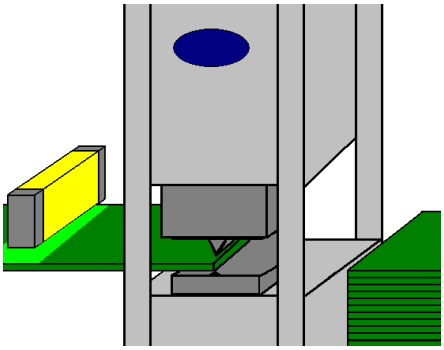
■No.9 Preheat of resin press



《 Problem Point 》
We have no idea about how to raise heat on short time.

《 ⇒Kaizen Point 》
It was preheat with the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the kind of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

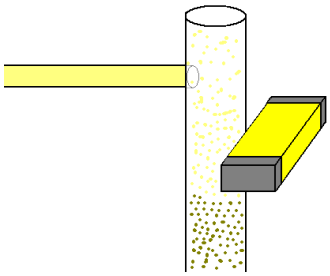
■No.10 Heat source of resin board cutting



《 Problem Point 》
Had trouble to board crack.

《 ⇒Kaizen Point 》
It was dry with the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the thickness of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

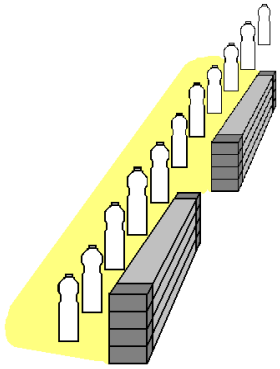
■No.11 Dryness of powder



《 Problem Point 》
We have no idea about how to Dryness of powder.

《 ⇒Kaizen Point 》
It was dry with the Halogen Line Heater.
Because infrared rays penetrated the fused silica, it was able to be dried while naturally falling.
The volatile element was exhausted from the upper part of the glass tube.
Because it was noncontact, safety and cleanness were able to be secured.

■No.12 Preheat of blow molding

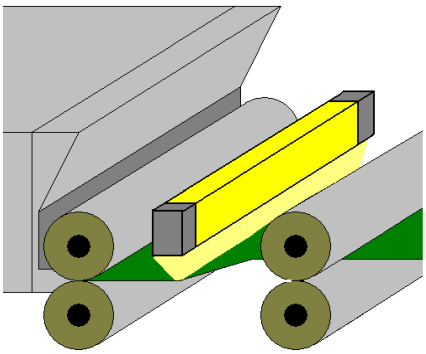


《 Problem Point 》
Had trouble to difficult temperature management of the heater.

《 ⇒Kaizen Point 》
It was preheat with the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the thickness of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

Applications of Halogen Line Heater Heat-tech

■No.13 Heat hardening of resin material



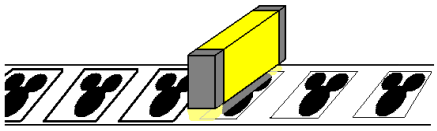
《 Problem Point 》

Had trouble to difficult temperature management of the heater.

《 ⇒Kaizen Point 》

It was heat with the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the thickness of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.14 Shrink processing



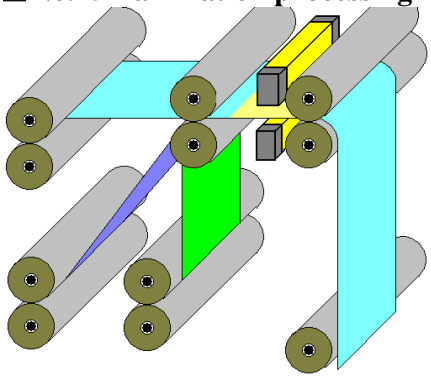
《 Problem Point 》

Had trouble to difficult temperature management of the heater.

《 ⇒Kaizen Point 》

It was heat with the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the thickness of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.15 Lamination processing



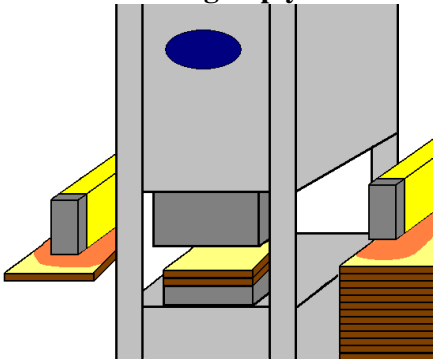
《 Problem Point 》

Installation space is narrow,
we have no idea about long length small and strong heater.

《 ⇒Kaizen Point 》

Preheated by the Halogen Line Heater in front and back.
The product fineness has improved because the temperature is changed by the thickness of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.16 Bonding of plywood



《 Problem Point 》

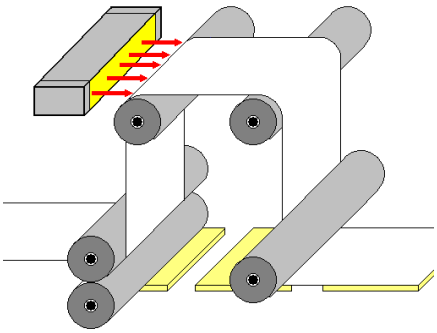
We have no idea about long length small and strong quickly heater.

《 ⇒Kaizen Point 》

Preheated and dryness by the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the thickness. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

Applications of Halogen Line Heater Heat-tech

■No.17 Preliminary heating of lamination of plywood



《 Problem Point 》

We have no idea about long length small and strong quickly heater.

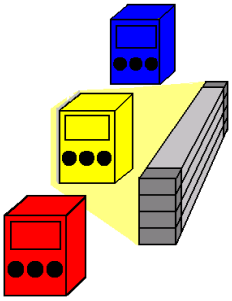
《 ⇒Kaizen Point 》

Preheated and dryness by the Halogen Line Heater.

The product fineness has improved because the temperature is changed by the thickness. And the quality has improved because the temperature steady by the voltage regulation was able to manage.

Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.18 Touch-up in consumer electronic repairer place



《 Problem Point 》

We have no idea about small and strong quickly heater.

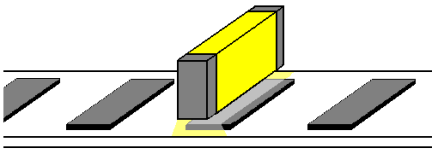
《 ⇒Kaizen Point 》

The touch-up was dried with the Halogen Line Heater.

It was possible to work while preventing the heat damage of other parts because temperature rose to the maximum temperature at five seconds.

Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.19 Molding preheating of rubber



《 Problem Point 》

Installation space is narrow,
we have no idea about long length small and strong heater.

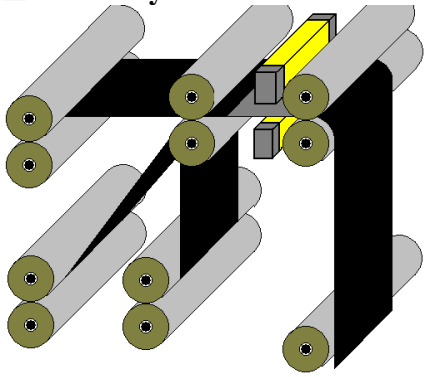
《 ⇒Kaizen Point 》

Preheated by the Halogen Line Heater.

The product fineness has improved because the temperature is changed by the thickness. And the quality has improved because the temperature steady by the voltage regulation was able to manage.

Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.20 Dryness of rubber after bonding



《 Problem Point 》

Installation space is narrow,
we have no idea about long length small and strong heater.

《 ⇒Kaizen Point 》

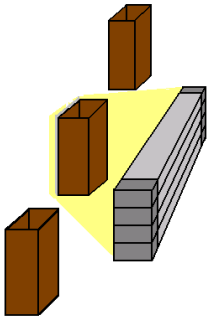
Preheated by the Halogen Line Heater in front and back.

The product fineness has improved because the temperature is changed by the thickness of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.

Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

Applications of Halogen Line Heater Heat-tech

■No.21 Bonding of leather

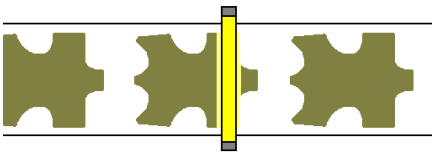


《 Problem Point 》
We have no idea about small and strong quickly heater.

《 ⇒Kaizen Point 》
Preheated by the Halogen Line Heater in front and back.
The quality has improved because a temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

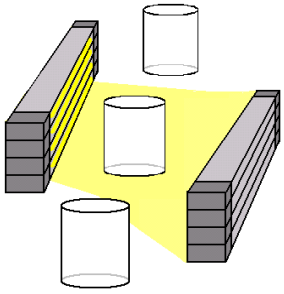
■No.22 Finish dryness of leather

《 Problem Point 》
We have no idea about no uneven illumination strong long heater.



《 ⇒Kaizen Point 》
Dryness by the Halogen Line Heater Length=2.5m.
The product fineness has improved because the temperature is changed by the leather quality. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.23 Dryness of glassware



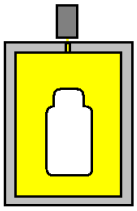
《 Problem Point 》
We have no way to Small Strong infrared heater.

《 ⇒Kaizen Point 》
Dryness by the Halogen Line Heater in right and left.

Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.24 Printing of earthenware

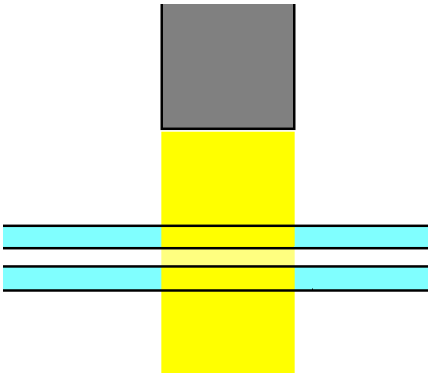
《 Problem Point 》
We have no way to put in the electric furnace to high temperatures.



《 ⇒Kaizen Point 》
Baked by the cave heating method with the Halogen Line Heater.
Obtained unprecedented color.

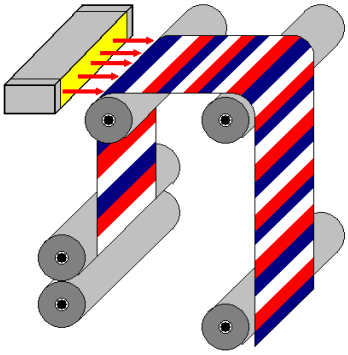
Applications of Halogen Line Heater Heat-tech

■No.25 Resin reinforcement sticking of the stiffening glass together



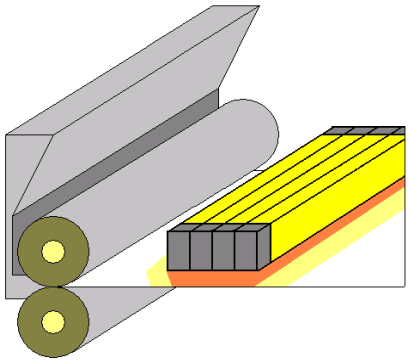
《 Problem Point 》
Glass plate couldn't interfere and heat the inner resin in suitable temperature.
《 ⇒Kaizen Point 》
Passes through the glass , it was heated by the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the thickness of the resin. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.26 Dryness of moisture of fibber (cloth)



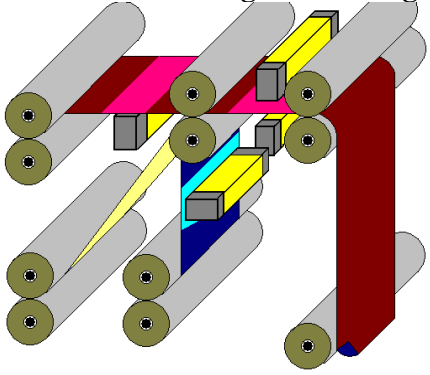
《 Problem Point 》
Rising of the heater is slow,
therefor it can't correspond to work of the special express job.
《 ⇒Kaizen Point 》
Dried by the Halogen Line Heater after soaping the dyed fabric.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work.
The idling time vanished, the current spending 30 minutes in idling until PID steady.
In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.27 Dryness of pre-shrunk resin finishing of fibber (cloth)



《 Problem Point 》
Rising of the heater is slow,
it couldn't balance with coating of shrink-proofed resin.
《 ⇒Kaizen Point 》
Dried by the Halogen Line Heater after coating fabric.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

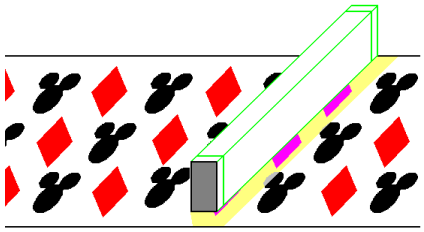
■No.28 Preheating and heating of bonding of reversible cloth



《 Problem Point 》
We have no way to small length=2.5m quickly high temperature heater.
《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater reversible cloth.
It is attached to the narrow place, and got cold so quickly, safety increased.
The product fineness has improved because the temperature is changed by the thickness of the cloth. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

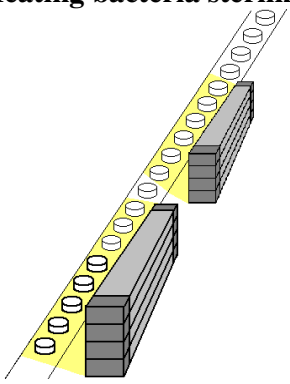
Applications of Halogen Line Heater Heat-tech

■No.29 Dryness of printing



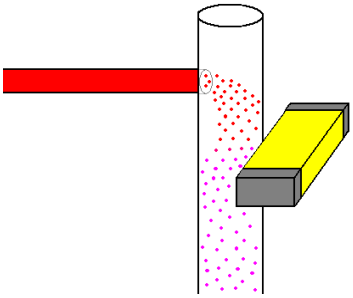
《 Problem Point 》
We have no way to small length=2.5m quickly high temperature heater.
《 ⇒Kaizen Point 》
The start was early and the process became smooth.
The product fineness has improved because the temperature is changed by the type of the pigment.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.30 Heating bacteria sterilization of medical supply made of the glass



《 Problem Point 》
Glass plate couldn't interfere and heat sterilization the inner bacteria in the suitable temperature.
《 ⇒Kaizen Point 》
Passes through the glass , it was heated by the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the thickness of the glass. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

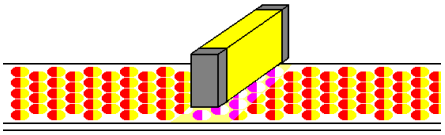
■No.31 Dryness of triturate



《 Problem Point 》
We have no idea about how to lead-free soldering of printed circuit boards.

《 ⇒Kaizen Point 》
Passes through the glass , it was heated by the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the medicinal properties. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

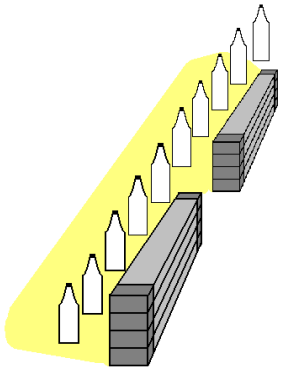
■No.32 Dryness of medicine pellet



《 Problem Point 》
Glass plate couldn't interfere and heat the inner resin in a suitable temperature.
《 ⇒Kaizen Point 》
Passes through the glass , it was heated by the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the medicinal properties. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

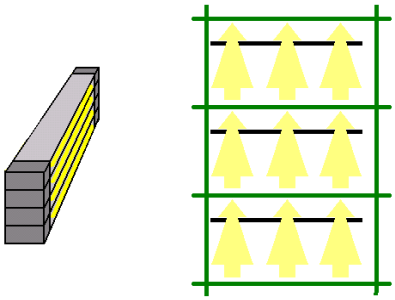
Applications of Halogen Line Heater Heat-tech

■No.33 Sterilization dryness of bottle ampoule



《 Problem Point 》
Glass plate couldn't interfere and heat the inner resin in a suitable temperature.
《 ⇒Kaizen Point 》
Passes through the glass , it was heated by the Halogen Line Heater.
The product fineness has improved because the temperature is changed by the medicinal properties. And the quality has improved because the temperature steady by the voltage regulation was able to manage.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

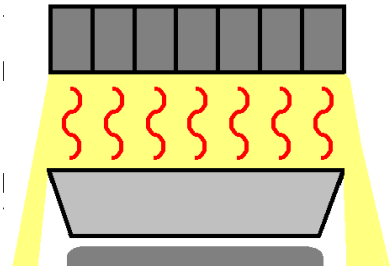
■No.34 Dryness of food



《 Problem Point 》
Rising of the heater is slow, the productivity is bad.

《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

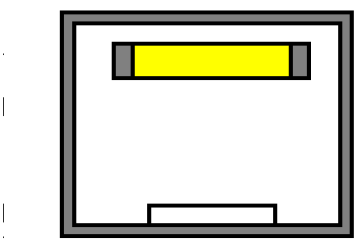
■No.35 Keeping warm of food



《 Problem Point 》
Rising of the heater is slow, the heat activity is bad.

《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.36 Heating in the vacuum chamber

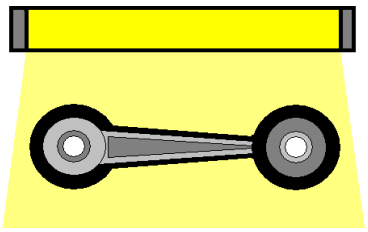


《 Problem Point 》
We have no idea about how to heat in the vacuum chamber.

《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

Applications of Halogen Line Heater Heat-tech

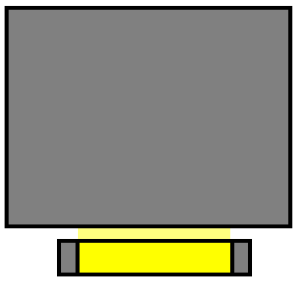
■No.37 Adjustment of metal stiffening



《 Problem Point 》
It is very difficult to annealing temperature control.

《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater casting surface.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

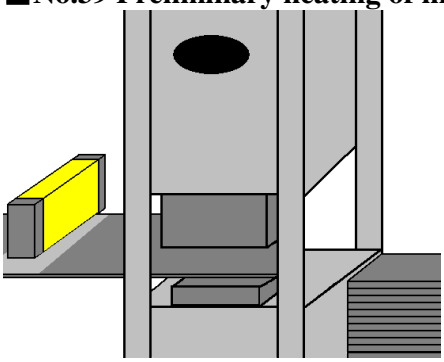
■No.38 Constant temperature maintenance of metal mold



《 Problem Point 》
We have trouble to the die temperature drift for changes in precision finishing .

《 ⇒Kaizen Point 》
Preheated die by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

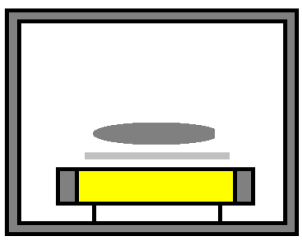
■No.39 Preliminary heating of metal material



《 Problem Point 》
We have no way to the drawing press wrinkle.

《 ⇒Kaizen Point 》
Preheated metal material by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.40 Deposition of aluminium

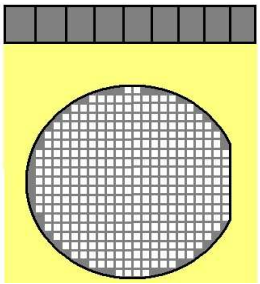


《 Problem Point 》
We have no idea how to deposition of aluminium in the vacuum chamber.

《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

Applications of Halogen Line Heater Heat-tech

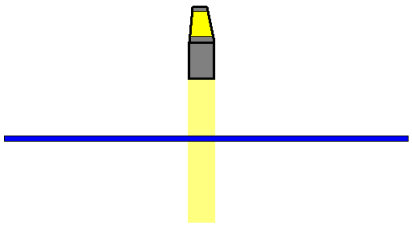
■No.41 Semiconductor wafer heat-treatment process



《 Problem Point 》
We have no idea how to heat semiconductor wafer in the vacuum chamber.

《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.42 Dryness and stiffening of wire covering

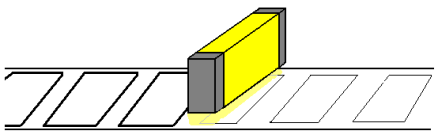


《 Problem Point 》
We have no idea about high temperature heater on short time.

《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

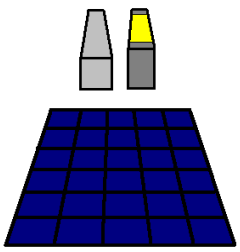
■No.43 Heating of FPD

《 Problem Point 》
We have no way to heated uniformly long area.



《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater.
Since the maximum temperature heated up in 5sec,
immediately after the start of operation could work.
Non-contact heating temperature and high-speed rise is possible,
even to accommodate larger substrates, enabling to 2.5M long length.
The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.44 Evaluation test on solar panel

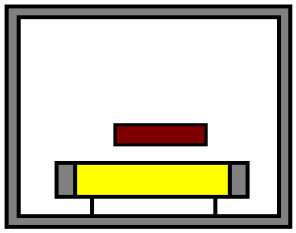


《 Problem Point 》
We have no way to powerful irradiated lamp with infrared and ultraviolet.

《 ⇒Kaizen Point 》
Irradiated infrared by the Halogen Line Heater.
Also UV lamp, the same type of custom-made ones.
Since the maximum temperature heated up in 5sec, immediately after the start of operation could work. The idling time vanished, the current spending 30 minutes in idling until PID steady. In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

Applications of Halogen Line Heater Heat-tech

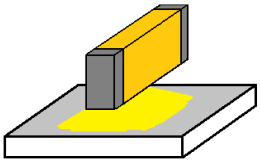
■No.45 Heat source for instrument for analysis

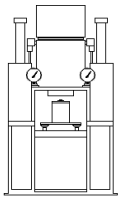


《 Problem Point 》
We are looking for not emit gases high temperature heater.

《 ⇒Kaizen Point 》
Heated by the Halogen Line Heater.
It does not emit gases, it can accurate analysis.
The idling time vanished, the current spending 30 minutes in idling until PID steady.
In addition, the amount of electric use decreases, and the exhaust of CO2 has decreased, too.

■No.46 Drying and preheating of powder metal

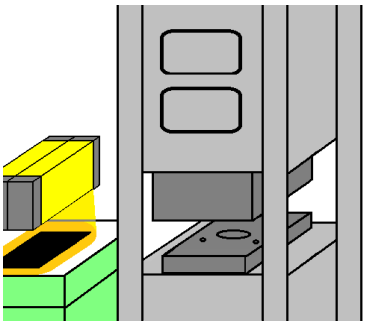




《 Problem Point 》
We were looking for can be radiation drying extensively, the heater of powder metals, at high temperatures.
《 ⇒Kaizen Point 》
We used surface heating type of the Halogen Line Heater.
Because it is radiation heating, and served in a stable environment in which fine powder is fluttering.

Flow ability of the powder so was homogeneous, products of the powder

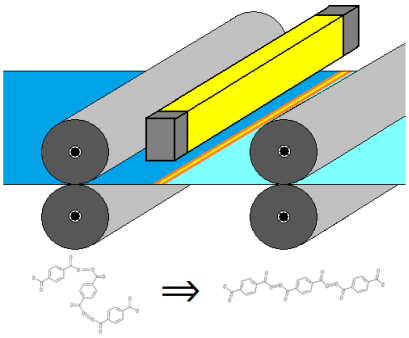
■No.47 Preheating of Carbon Cloth



《 Problem Point 》
We were looking for can be radiation uniformity,
the heater of carbon fibber cloth, at high temperature for a short time.

《 ⇒Kaizen Point 》
We used combining the flat heating type of a halogen line heater several sets.
The carbon fibber cloth became soft for a short time,
and the product of press molding improved.

■No.48 Molecular alignment of the resin film sheet

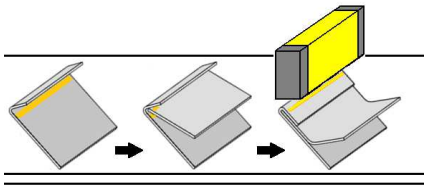


《 Problem Point 》
We were looking for a linear heater capable of heating
at high temperature required for the molecular alignment.

《 ⇒Kaizen Point 》
We use a condensing type heating equipment of halogen line heater.
Molecular alignment of the sheet was clean.

Applications of Halogen Line Heater Heat-tech

■No.49 Heating and drying of hot melt



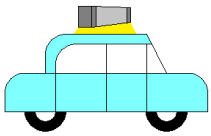
《 Problem Point 》

It is necessary to shorten the drying time of the hot melt

《 ⇒Kaizen Point 》

We were using the line condensing type halogen line heater.
Since the line condensing type, to suit the application position of the hot melt can be accurately heated, it was reduced drying time.
We succeeded in shortening the cycle time of the line.

■No.50 Drying after car wash



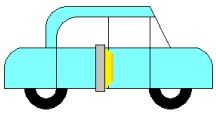
《 Problem Point 》

It is necessary to

《 ⇒Kaizen Point 》

We were using the parallel light type halogen line heater.
Because the light heating, non-contact heating is possible, it was able to shorten the drying time.
We succeeded in shortening the cycle time of the line.

■No.51 Heating and drying of the sealer



《 Problem Point 》

It is necessary to shorten the drying time of the sealer.

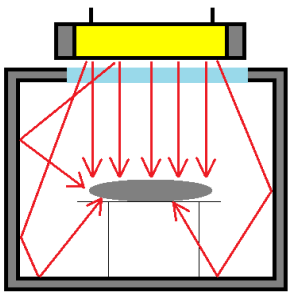
《 ⇒Kaizen Point 》

We were using the line condensing type halogen line heater.

Because the line condensing type, in accordance with the application position of the sealer can be precisely heated, it was able to shorten the drying time.

We succeeded in shortening the cycle time of the line.

■No.52 Sample heating in the vacuum chamber



《 Problem Point 》

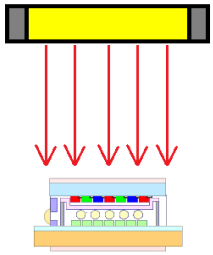
It is necessary to visually heating process.

《 ⇒Kaizen Point 》

We were using the parallel light type halogen line heater.
Process is well understood since the heating change can be confirmed visually.
We succeeded in shortening the test time.

Applications of Halogen Line Heater Heat-tech

■No.53 Heat test of the colour filter



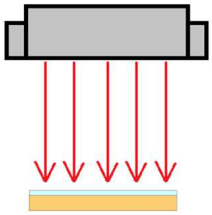
《 Problem Point 》

It is necessary to shorten the new development time of a colour filter.

《 ⇒Kaizen Point 》

We were using the parallel light type halogen line heater.
Since the halogen heating type, it was able to easy and accurate heating.
We succeeded in shortening the test time.

■No.54 Borosilicate glass plate melting



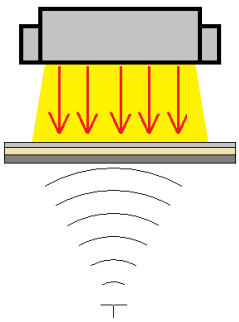
《 Problem Point 》

There was no substitute heat source to replace gas.

《 ⇒Kaizen Point 》

Borosilicate glass plate was melted using a halogen line heater.
The glass tube processing process was composed only by electric equipment.
In addition, we fulfilled the administrative guidance of the Fire-department.

■No.55 Heating of microwave absorbing composite



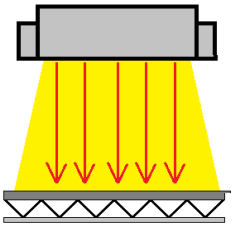
《 Problem Point 》

Microwave absorption characteristics of composite materials under high temperature environments could not be grasped.

《 ⇒Kaizen Point 》

Heated at high temperature using a halogen line heater.
Since it can be heated to an arbitrary temperature by feedback control,
The temperature dependence of the absorption rate change was able to be grasped.

■No.56 Borosilicate glass plate melting



《 Problem Point 》

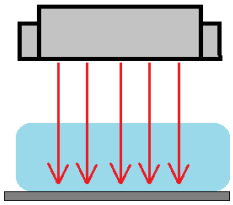
The creep characteristic of the high temperature heat insulating material could not be grasped.

《 ⇒Kaizen Point 》

And heated at high temperature using a halogen line heater.
Since it can be heated to any temperature by the feedback control,
The temperature dependence of the creep characteristics and the stability of the dynamics can be grasped.

Applications of Halogen Line Heater Heat-tech

■No.57 Surface modification of resin



《 Problem Point 》

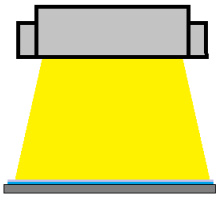
The hydrophilicity of the resin was not good

《 ⇒Kaizen Point 》

Gas was brought into contact with the resin and irradiated with a halogen line heater.

A synthetic thin film was formed on the surface, and hydrophilicity was improved.

■No.58 Improved affinity for metal thin films



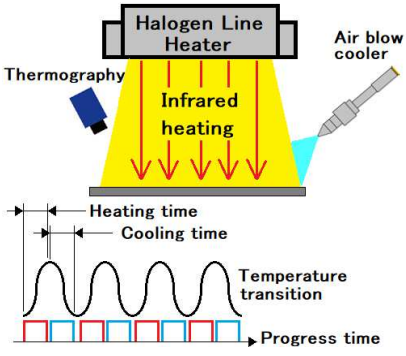
《 Problem Point 》

The affinity of the metal thin film was not good

《 ⇒Kaizen Point 》

The metal was heated and activated, and the affinity was improved.

■No.59 Lock-in infrared heat generation analysis-Lock-in thermography method



《 Problem Point 》

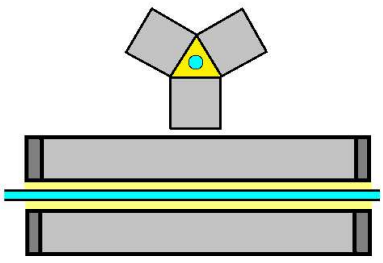
We were looking for a heater that would synchronize with the pulse signal

《 Kaizen Point 》

By changing the applied frequency, it was possible to limit the area of the heat generation point. When applied in a low cycle, a large temperature change was observed and a large region was visible. High cycle application could be limited to a small area. Then, by changing the applied voltage, the heat generation state could be changed. Furthermore, by using a cold air cooler together, the cooling cycle could be controlled.

■No.60 Chemical liquid heater

Halogen Line Heater



Heat-tech

《 Problem Point 》

There was no good heater that could heat the chemical liquid at high speed

《 Kaizen Point 》

Three halogen line heaters were combined to create a triangular space, and a qu

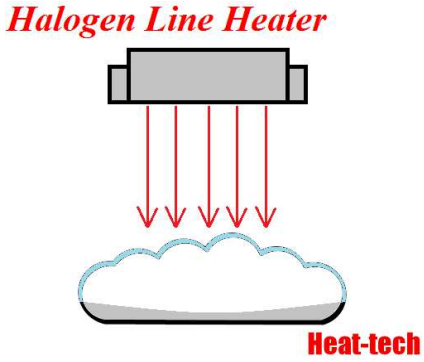
We were able to improve from batch processing to line processing.

Since it was irradiated on three sides, it could be heated evenly.

Furthermore, since three units are used, the output is large and high-speed fluid

Applications of Halogen Line Heater Heat-tech

■No.61 Measures against freezing and frost formation in frozen warehouses



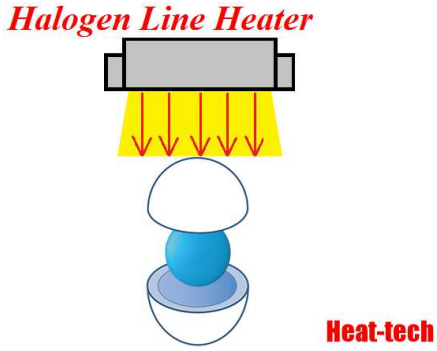
《 Problem Point 》

Frequent malfunctions of heat shield doors due to freezing and sensors due to frost

《 Kaizen Point 》

Because it vibrates and sublimates water molecules of frost and ice,
It was possible to prevent frost and freezing on the walls and ceiling.
It has become a safe and secure workplace.

■No.62 Evaluation of metal heat storage material



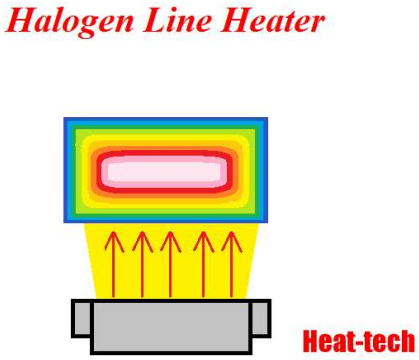
《 Problem Point 》

High speed heating was required to evaluate the responsiveness of the heat storage material

《 Kaizen Point 》

Uses a halogen line heater that instantly heats up
The speed of the evaluation experiment has increased
I was able to manage the deadline of the experiment

■No.63 Evaluation of thermal responsiveness of thin ceramic plates



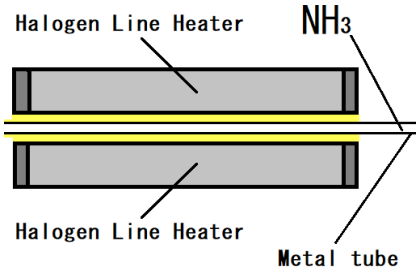
《 Problem Point 》

We were looking for a heater to supplement the amount of heat dissipated from the thin plate

《 Kaizen Point 》

Using a fast response halogen line heater
The accuracy of the feedback evaluation experiment has improved.

■No.64 Anmoniagasu kanetsu-yō inrainhītā



《 Problem Point 》

We were looking for a heater that could safely heat ammonia gas.

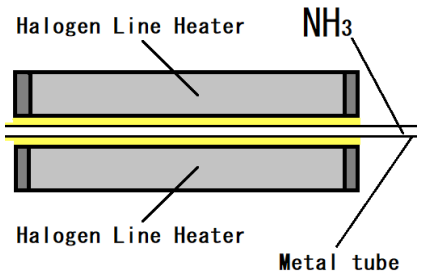
《 Kaizen Point 》

A halogen line heater is placed facing the metal pipe to heat it.
Safe heating because it is in-line

Applications of Halogen Line Heater

Heat-tech

■No.65 In-line heater for heating liquid ammonia



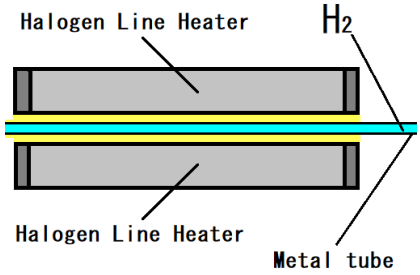
《 Problem Point 》

We were looking for a heater that could safely heat liquid ammonia

《 Kaizen Point 》

A halogen line heater is placed facing the metal pipe to heat it.
Safe heating because it is in-line

■No.66 In-line heater for hydrogen gas heating



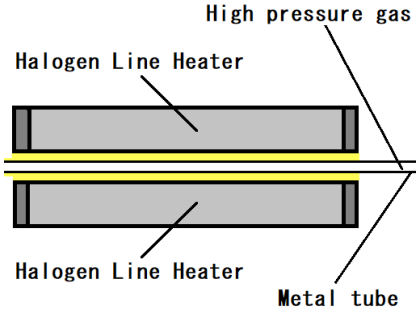
《 Problem Point 》

We were looking for a heater that could safely heat hydrogen gas

《 Kaizen Point 》

A halogen line heater is placed facing the metal pipe to heat it.
Safe heating because it is in-line

■No.67 Inline heater for high pressure gas heating



《 Problem Point 》

We were looking for a heater that can heat high-pressure gas

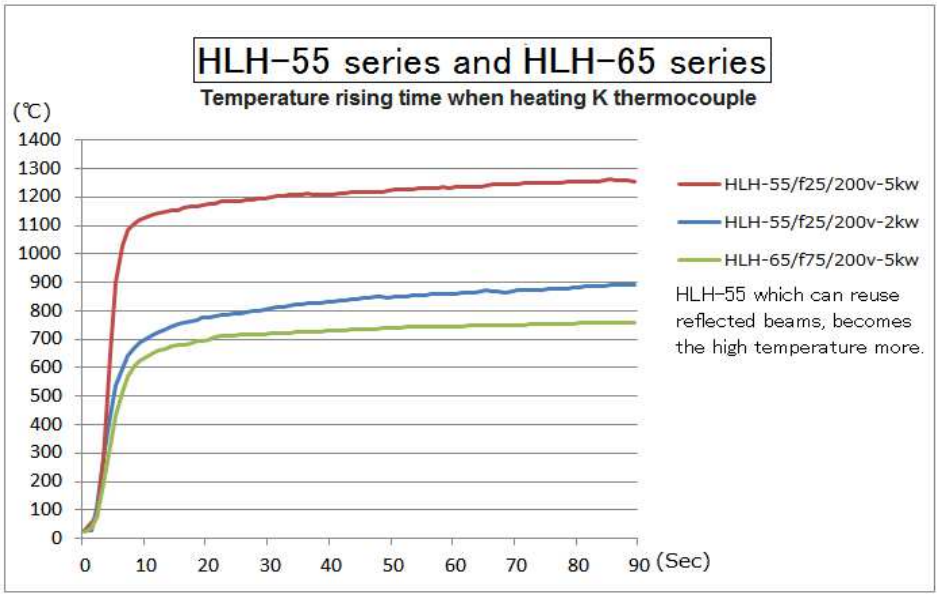
《 Kaizen Point 》

A halogen line heater is placed facing the metal pipe to heat it.
Safe heating because it is in-line

3 Overview of Halogen Line Heaters

3-1. High-temperature heating, and heated to 1000 ℃ - 1400 ℃ in just 5 seconds!

High conversion efficiency from electrical to radiant energy,
Concentrate on one point the light of the halogen lamp, reach the temperature 1400 ℃ ~ 1500 ℃.

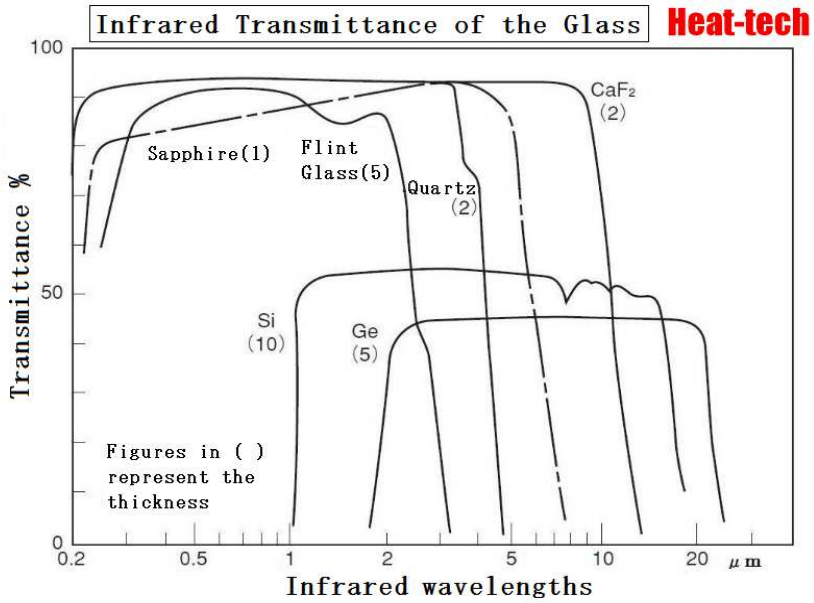


3-2. Instantaneous heating, the heating time can be shortened.

HPH is to put large amounts of heat at high speed, miniaturization of equipment,
the heating time can be shortened.
Until now, that was over 30 minutes of idling, idle time can be zero.
Since there is no lag temperature, eliminating the waste of waiting time.

3-3. Heating through the glass.

Quartz glass hardly absorbs visible light and the near-infrared radiation.
Transmittance is 93%. There are only 7% reflection.
Through the glass, the heating can also work in an atmosphere of inert gas in the vacuum.



3-4. Temperature can be controlled with high precision.

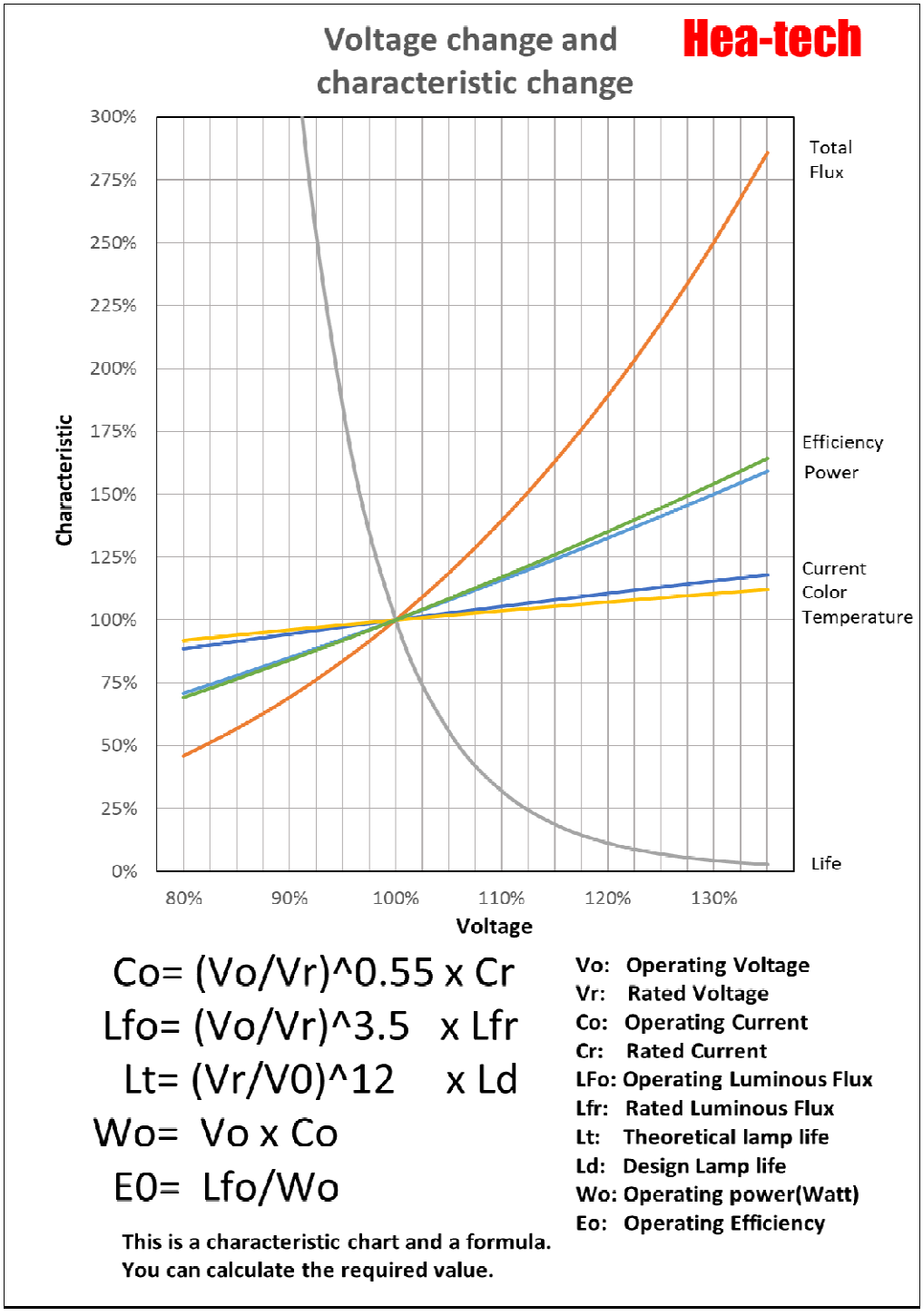
Control any temperature from ambient to maximum temperature with supply voltage.
Supply voltage of the lamp output is capable of any design, the maximum output is around 2.5kw.

3-5. Clean.

The optical non-contact heating can be the complete heating in the vacuum chamber.

3-6. Possible long life.

The lamp longevity can be arbitrarily controlled from usually longevity to long life by the supply voltag



if user lower it by 10% from the rated voltage, design life will be lengthens to 3 times.
If user lower it by 20% from the rated voltage, design life will be lengthens to 9 times.

3-7. Excellent in safety.

This heater is relatively safe for humans.

Neither dust nor the gases are generated, workers work comfortably.

Moreover, when trouble has came, this rapid cool heater can reduce the risk of ignition of the heated object.

3-8.Comparison of optical heating methods

Item	Halogen	Infrared	Laser	Xenon
Radiation efficiency	◎	○	△	○～△
Highest temperature	1500℃	700℃	～∞	1800℃
High power	◎	◎	◎	△
Wide Area	◎	◎	△	△
Start-up time	◎	○	◎	◎
Costs	◎	◎	△	△
Size	○	○	△	△
Distance	○	◎	◎	◎
Metal heating	○	×	◎	○
Non-metal heating	◎～△	◎	◎	◎～△
Glass through heating	◎	×	◎	◎
Clean	◎	◎	◎	◎
Permeation heating of translucent	○	×	◎	○
Safety	○	○	△	△

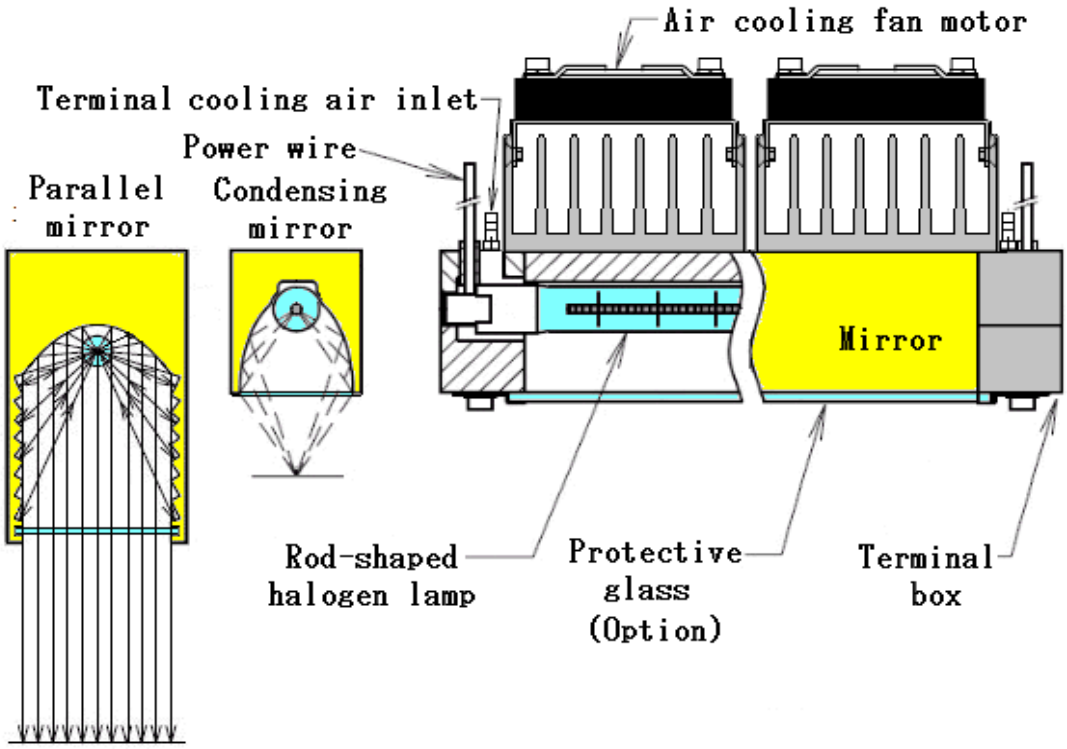
*The wavelength band of the light of the halogen lamp is 0.4-2.5 μ m region,
(from visible optical to near-infrared radiation region),
where about 1 μ m is assumed to be a peak.

*The semitransparent body (skin, paints, and adhesive, etc.) comparatively enters the inside,
and is heated from the inside.

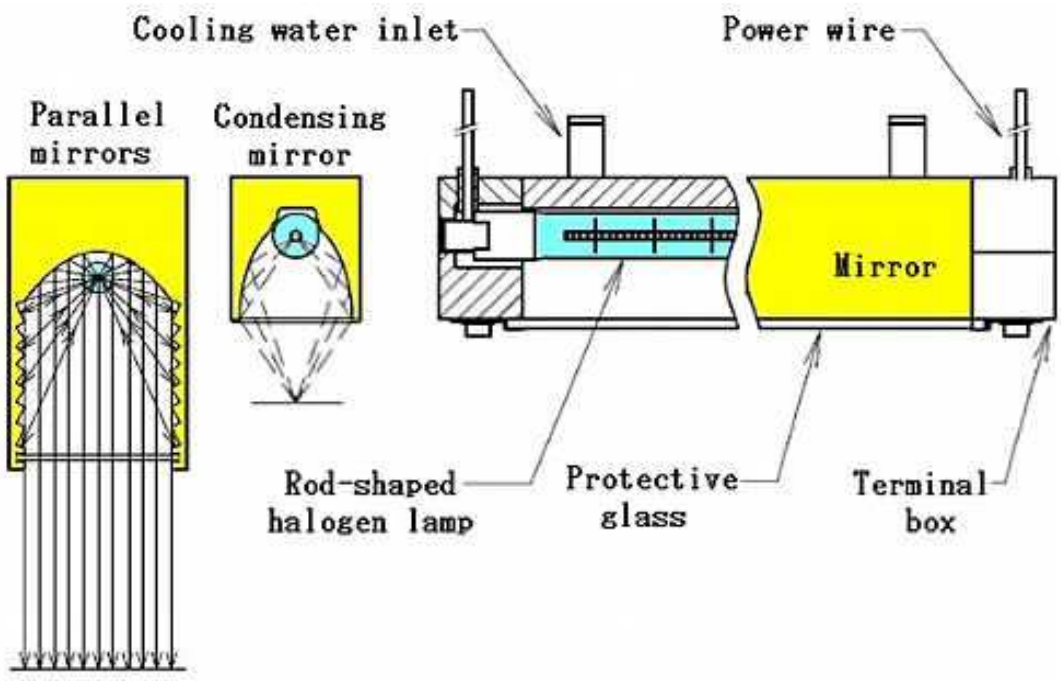
* The rate of absorption to metal better than the far-infrared light,
to get a large difference between non-metallic materials also good.

4 Basic structure

Air cooling fan type



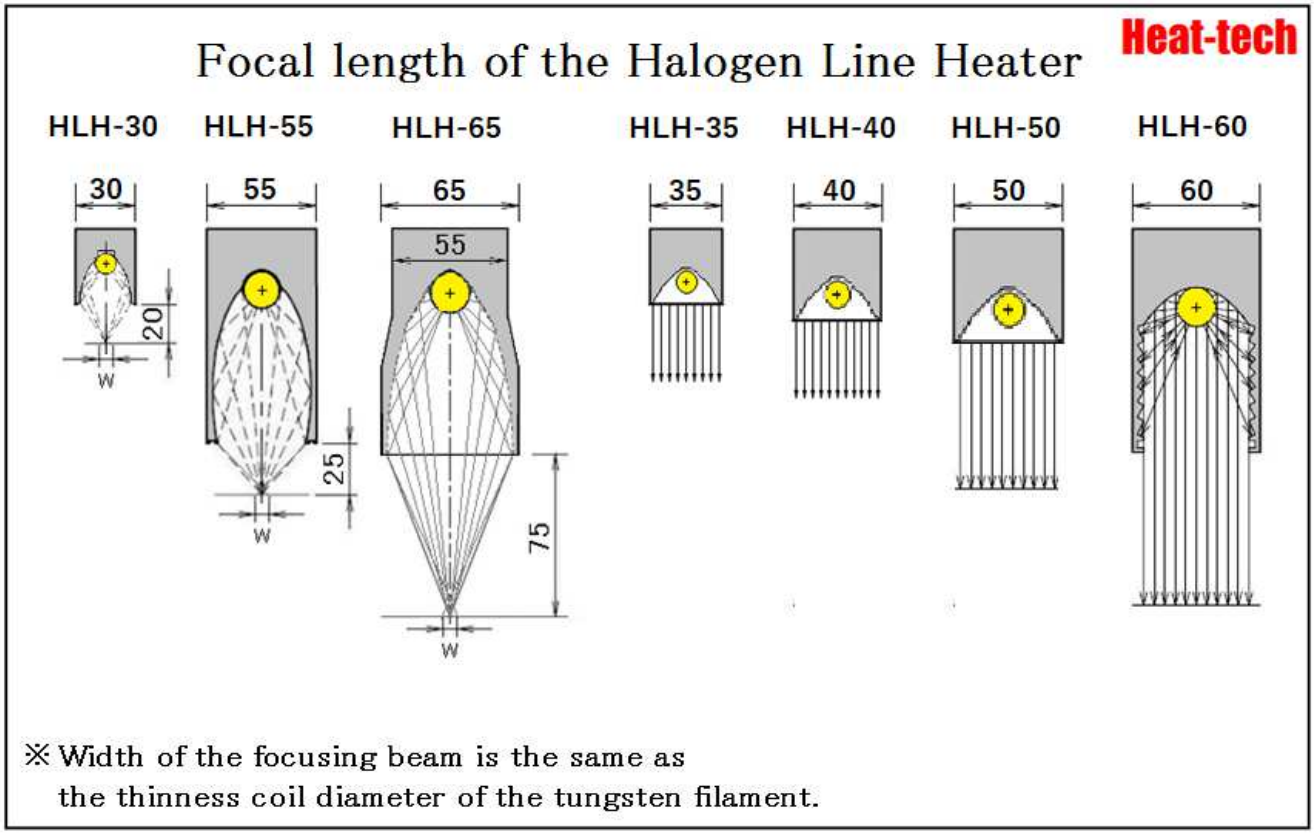
Water cooling type



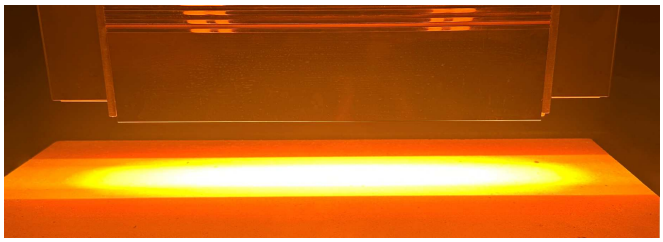
5 Model composition list

D/#	Light Type	Focus	Cooling	Power	Mirror Length
HLH-30A	Condensing	20mm	Air Cooling	200w～5kw	84～1000mm
HLH-30W			Water Cooling	500w～12kw	50～1300mm
HLH-55A		25mm	Air Cooling	2kw～16kw	280～2500mm
HLH-55W			Water Cooling	2kw～26kw	100～2500mm
HLH-65A		75mm	Air Cooling	2kw～16kw	280～2500mm
HLH-65W			Water Cooling	2kw～26kw	100～2500mm
HLH-35A	Parallel	∞	Air Cooling	200w～5kw	82～1000mm
HLH-35W			Water Cooling	500w～12kw	50～1300mm
HLH-40W			Water Cooling	2kW 3kW 5kW	280mm
HLH-50W			Water Cooling	2kW 3kW 5kW	280mm
HLH-60A			Air Cooling	2kw～16kw	280～2500mm
HLH-60W			Water Cooling	2kw～26kw	100～2500mm

6 focal length and focal diameter



<< Condensing >>



<< Parallel >>

7 Model selection method

7-1. Determine the mirror length of the heater by adding extra width to the size of the object to be heated.
If user choose a standard product, the delivery time will be shorter.

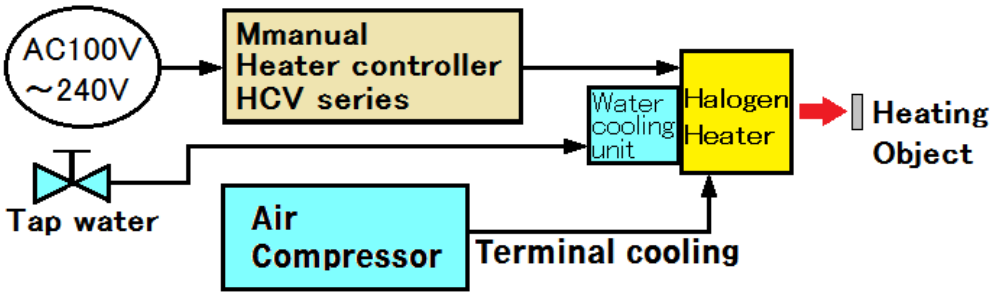
7-2. Based on the heating range, select the model for line heating or surface heating.
HLH-35W is recommended when using multiple units side by side.

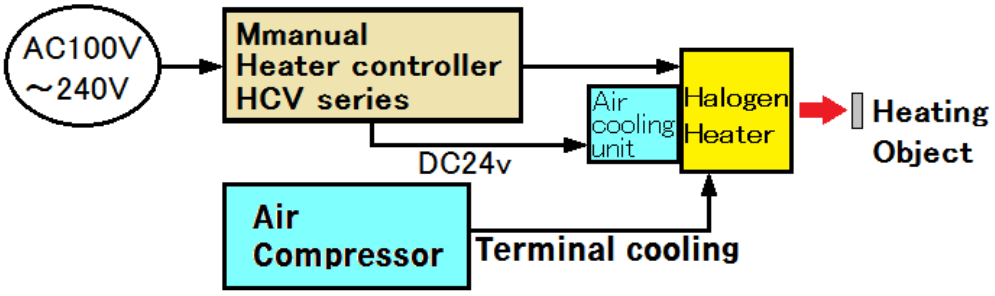
7-3. Determine the heater wattage required for the target temperature.
The safety factor is 200%, so choose double the wattage.

7-4. Select the cooling method from water cooling and air cooling.
5kW or more will be water-cooled.

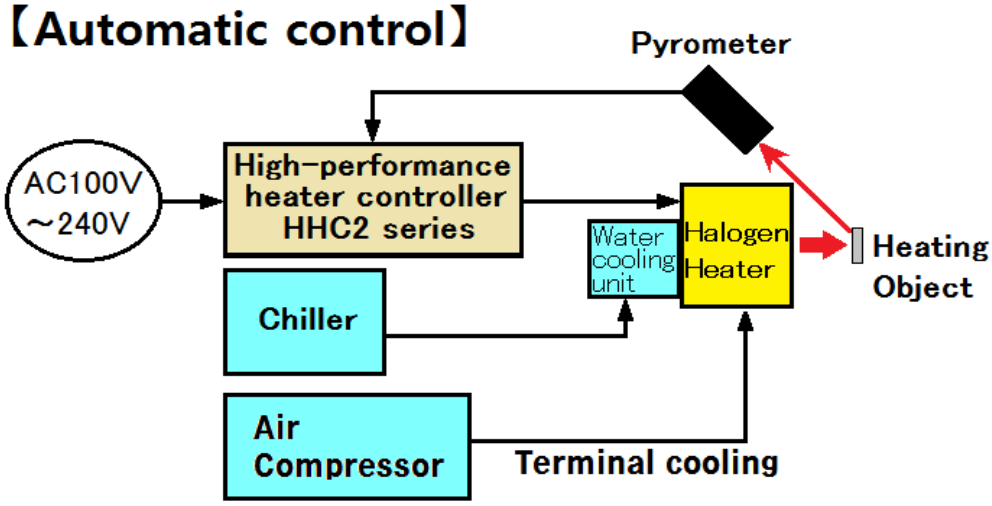
7-5. Select a heater controller that matches the control method.

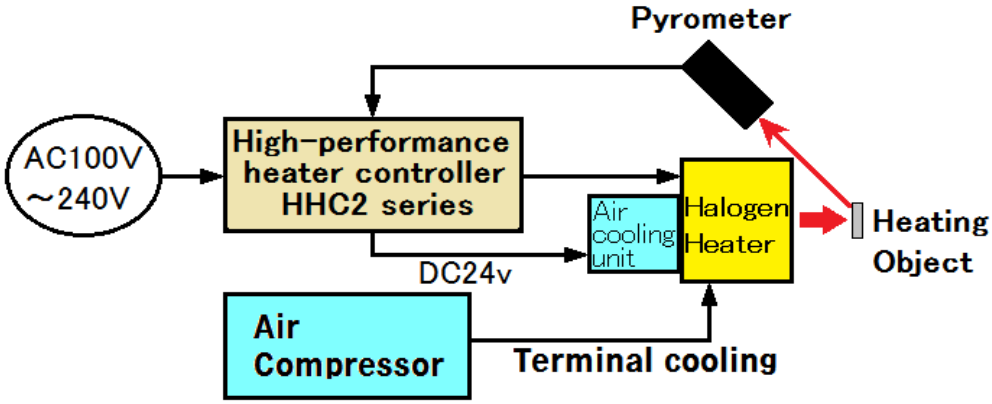
【Manual control】





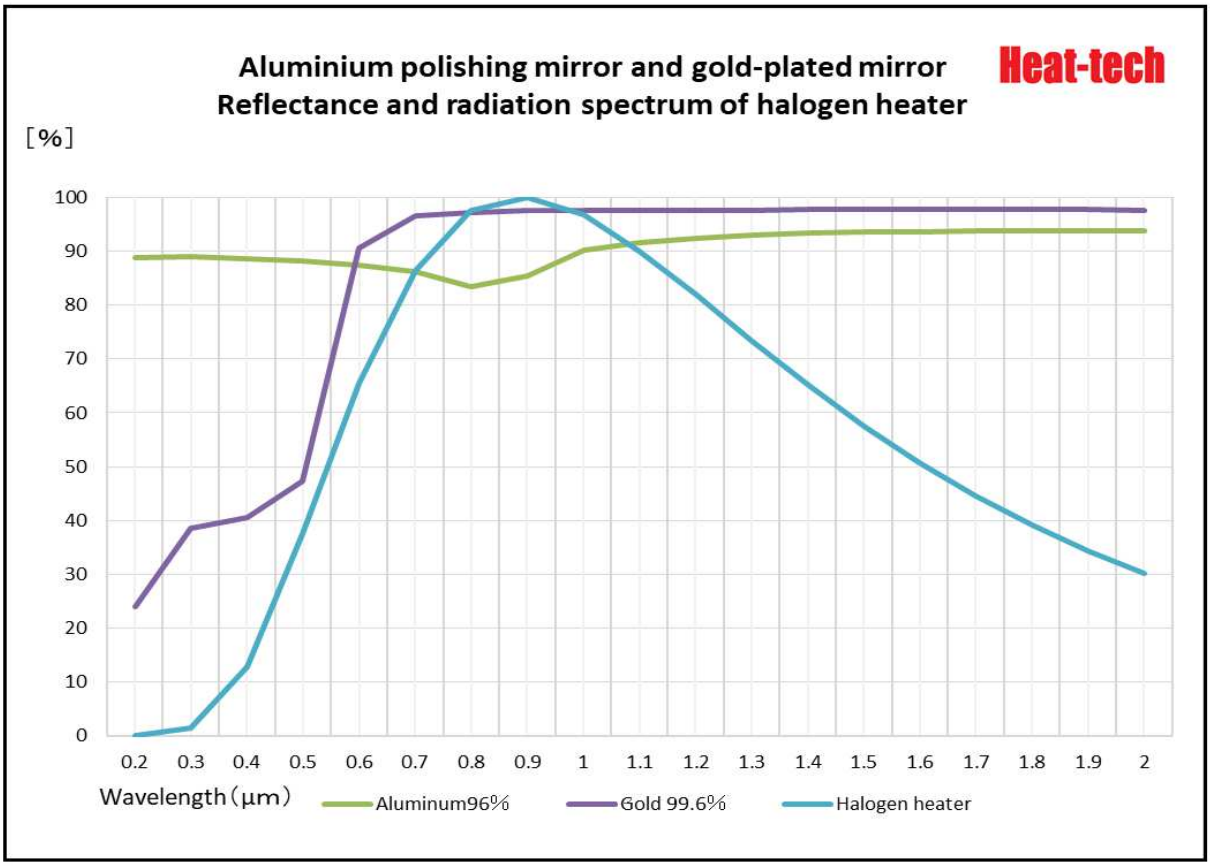
【Automatic control】





9 Absorption rate of infrared

Characteristics of halogen light



Heat-tech

【 Infrared Absorption Rate 】

Please confirm the index of absorption of infrared rays in this table.

The material absorbed by about 0.5 = 50% or more is suitable for the infrared heating.

【 Organism 】	Infrared absorption rate(=Emissivity)				
Wavelength	1	1.6	2.4	3~5	8~14
Material	μm	μm	μm	μm	μm
Human skin					0.98
Natural wood				0.9-0.95	0.9-0.95
Charcoal					0.96
Carbon soot	0.95	0.95		0.95	0.95~0.97
Carbon graphite	0.85	0.85	0.85	0.85	0.8
Silicon carbide				0.9	0.9
Paper black					0.9
Paper black matted					0.94
Paper green					0.85
Paper red					0.76
Paper white					0.7~0.9
Paper yellow					0.72
Cloth black					0.98
Cloth high gauge knit	0.75	0.8	0.85	0.85	0.95
Plastic				0.60~0.95	0.95
Asphalt	0.85	0.85		0.9	0.85
Tar					0.79~0.84
Tar paper					0.91~0.93
General Paint				0.87-0.96	
Lacquer bakelite					0.93
Lacquer black matted					0.96~0.98
Lacquer glossy black spray iron					0.87
Lacquer white luster					0.8~0.95
Shellac black matted					0.91
Shellac black luster					0.82
Aluminum paint				0.69	
Rubber Hard				0.9	0.95
Rubber Gray Soft				0.86	0.86

Heat-tech

【 Infrared Absorption Rate 】

Please confirm the index of absorption of infrared rays in this table.

The material absorbed by about 0.5 = 50% or more is suitable for the infrared heating.

【 Mineral 】	Infrared absorption rate(=Emissivity)				
Wavelength	1	1.6	2.4	3~5	8~14
Material	μm	μm	μm	μm	μm
Granular silica powder					0.48
Silica powder					0.3
Polished glass surfaces				0.91-0.96	
Pottery				0.86	0.92
Porcelain pottery					0.70~0.75
Ceramic	0.4	0.5	0.85-0.95	0.95	0.9
Alumina Al2O3	0.3	0.3	0.3	0.4	0.6
Brick Red	0.8	0.8	0.8	0.93	0.9
Brick White Fireproof	0.3	0.35			0.8
Brick Silica	0.55	0.6			0.8
Brick Sillimanite	0.6	0.6			0.6
Asbestos	0.9	0.9		0.9	0.85
Mud					0.9-0.98
Unglazed clay					0.91
Raw clay				0.85-0.95	0.95
Concrete	0.65	0.7	0.9	0.9	0.9
Cement					0.54-0.96
Gravel				0.95	0.95
Sand				0.6-0.9	0.6-0.9
Coarse emery					0.85
Basalt				0.7	0.95
Polished gray marble					0.93
Mica					0.72
Limestone				0.4-0.98	0.98
Plaster				0.4-0.97	0.8-0.95
Stucco					0.91
Snow					0.8-0.9
Water thickness least 0.1mm				0.96	0.95~0.98
Ice				0.96	0.98

Heat-tech

【 Infrared Absorption Rate 】

Please confirm the index of absorption of infrared rays in this table.

The material absorbed by about 0.5 = 50% or more is suitable for the infrared heating.

【 Magnetic metal 】	Infrared absorption rate(=Emissivity)				
Wavelength	1	1.6	2.4	3~5	8~14
Material	μm	μm	μm	μm	μm
Iron non-oxidation side	0.35	0.3		0.18	0.1
Iron oxidation side	0.85	0.85	0.85	0.85	0.8
Iron rust side		0.6-0.9			0.5-0.7
Iron melt	0.35	0.4-0.6			
Cast iron grinding side				0.21	
Cast iron oxidation side	0.85			0.58	0.6-0.95
Cast iron non-oxidation side	0.35	0.3			0.2
Cast iron melt	0.35	0.3-0.4			0.2-0.3
Steel cooling roll	0.8-0.9	0.8-0.9			0.7-0.9
Steel grinding seat	0.35	0.25		0.07	0.1
Steel melt	0.35	0.25-0.4			
Steel oxidation side	0.8-0.9	0.8-0.9			0.7-0.9
Stainless steel	0.35	0.2-0.9			0.1-0.8
Inconel non-oxidation side	0.3	0.3	0.3	0.28	0.1
Inconel oxidation side	0.85	0.85	0.85	0.85	0.85
Inconel Sand blast	0.3-0.4	0.3-0.6			0.3-0.6
Inconel grinding side	0.2-0.5	0.25			0.15

Heat-tech

【 Infrared Absorption Rate 】

Please confirm the index of absorption of infrared rays in this table.

The material absorbed by about 0.5 = 50% or more is suitable for the infrared heating.

【Precious / Nonferrous metal】	Infrared absorption rate(=Emissivity)				
Wavelength	**1**	**1.6**	**2.4**	**3~5**	**8~14**
Material	**μm**	**μm**	**μm**	**μm**	**μm**
Platinum	0.27	0.22	0.18	0.1-0.04	0.07
Gold	0.05	0.02	0.02	0.02	0.02
Silvery grinding side				0.02	
Silver non-oxidation side	0.01	0.01	0.01		0.01
Silver oxidation side	0.05	0.04	0.04	0.03	0.02
Copper mirror side				0.02	
Copper non-oxidation side	0.06	0.05	0.04	0.04	0.03
Copper rough side		0.05-0.2		0.072-0.50	
Copper oxidation side	0.85	0.85	0.85	0.85	0.8
Brass specular				0.052	
Brass non-oxidation	0.2	0.18		0.1	0.03
Brass oxidation side	0.7	0.7	0.7	0.46-0.61	0.6
Lead non-oxidation side	0.35	0.28		0.16	0.13
Lead rough side	0.65	0.6			0.4
Lead oxidation side	0.65	0.65	0.65	0.63	0.65
Lead grinding side				0.05	
Tin non-oxidation side	0.25-0.4	0.1-0.28	0.12	0.09	0.06
Tin oxidation side	0.6	0.6	0.6		0.6
Tin luster side				0.05	
Zinc non-oxidation side	0.5	0.32	0.1	0.05	0.04
Zinc oxidation side	0.6	0.55		0.11	0.3
Zinc galvanization steel board				0.23	
Aluminum specular				0.02	
Aluminum usual grinding side				0.04	
Aluminum non-oxidation side	0.13	0.09	0.08	0.05	0.025
Aluminum oxidation side	0.4	0.4	0.4	0.08-0.3	0.35
Aluminum alloy A3003 rough side	0.2-0.8	0.2-0.6			0.1-0.3
Aluminum alloy A3003 grinding side	0.1-0.2	0.02-0.1			
Aluminum alloy A3003 oxidation side		0.4			0.3

Heat-tech

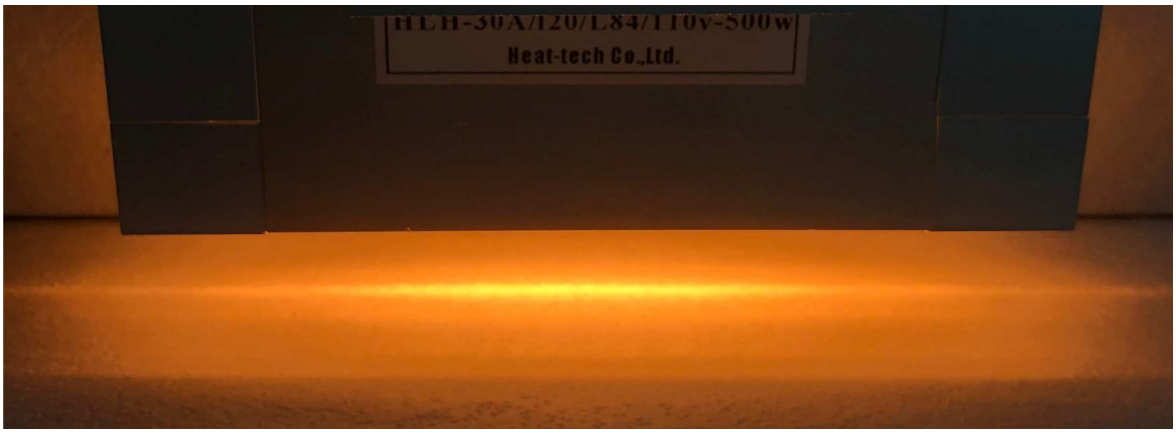
【 Infrared Absorption Rate 】

Please confirm the index of absorption of infrared rays in this table.

The material absorbed by about 0.5 = 50% or more is suitable for the infrared heating.

【 Rare earth 】	Infrared absorption rate(=Emissivity)				
Wavelength	1	1.6	2.4	3~5	8~14
Material	μm	μm	μm	μm	μm
Mercury		0.05-0.15			
Titanium non-oxidation side	0.55	0.5	0.42	0.3	0.15
Titanium oxidation side	0.8	0.8			0.6
Tungsten	0.39	0.3	0.2	0.13	0.06
Tungsten grinding side	0.35-0.4	0.1-0.3		0.04	
Palladium	0.28	0.23		0.08	0.05
Rhodium	0.25	0.18		0.07	0.05
Molybdenum non-oxidation side	0.33	0.25		0.07	0.1
Molybdenum oxidation side	0.8	0.8	0.8	0.8	0.8
Magnesium non-oxidation side	0.27	0.24	0.2	0.12	0.07
Magnesium oxidation side	0.75	0.75	0.75		0.75
Magnesite			0.6		
Monel non-oxidation side	0.25	0.22	0.2	0.1	0.1
Monel oxidation side	0.7	0.7	0.7	0.45	0.7
Cobalt non-oxidation side	0.32	0.28		0.18	0.04
Cobalt oxidation side	0.7	0.65			0.35
Nickel non-oxidation side	0.35	0.25		0.15	0.04
Nickel oxidation side	0.85	0.85			0.85
Nickel grinding side				0.05	
Nickel electrolysis	0.2-0.4	0.1-0.3			
Chrome non-oxidation side	0.43	0.34		0.15	0.07
Chrome oxidation side	0.75	0.8			0.85
Nichrome non-oxidation side	0.3	0.28			0.2
Nichrome oxidation side	0.85	0.85	0.85	0.9-0.95	0.85
Nichrome grinding side				0.08	
Nichrome luster side				0.65	

10 Ultra small HLH-30 series for line heating



10-1.Features of HLH-30

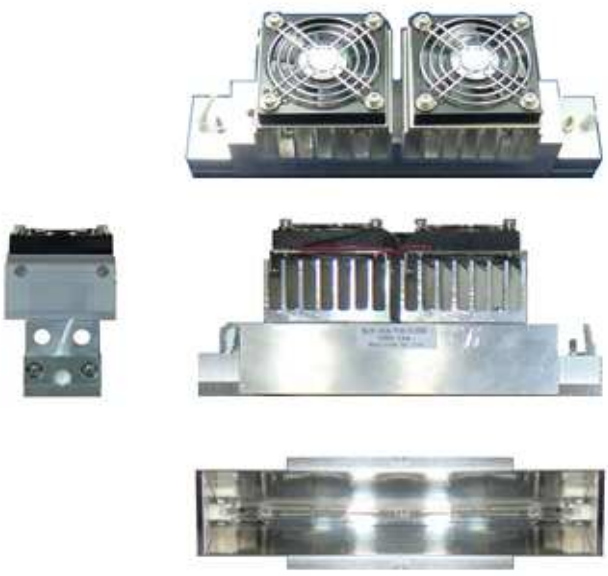
1) Small and heat linearly up to 1000℃.
Ultra-compact halogen line heater HLH-30 is a condensing infrared heating device that uses a rod-shaped halogen lamp.

The product concept is "small things". It is extremely small with a width of 30mm and a height of 34mm.

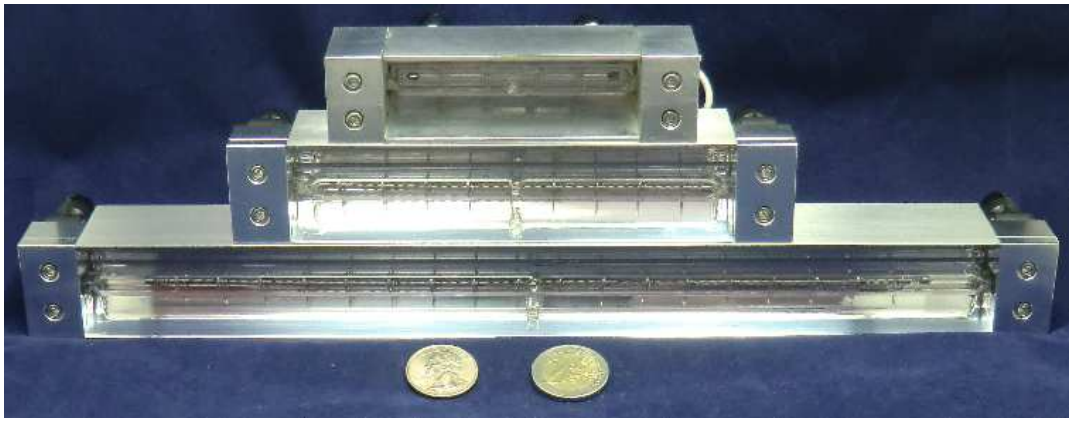
The condensing mirror surface uses a compound curved surface of an ellipse and a circle to overcome the negative aspects of miniaturization.
The maximum heating temperature is approx.

2) Perfectly clean heating is achieved, and heating in clean rooms and vacuums is also possible.
The water-cooled type can be used in a vacuum vessel.
When placed in a vacuum cleaner, a small amount of gas is emitted from the inorganic adhesive at the beginning, so vacuum treatment is required in advance.

10-2. External view of HLH-30

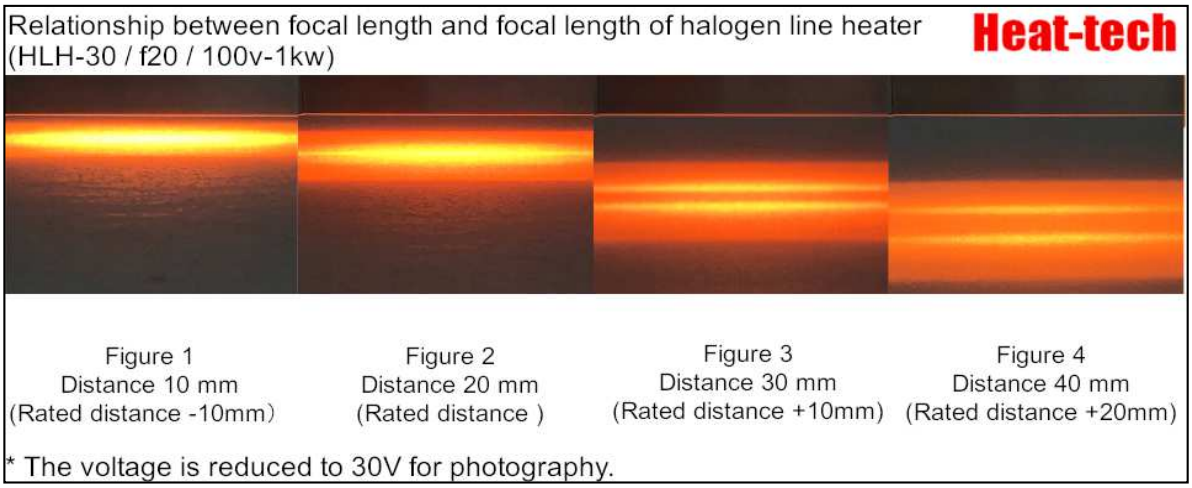


《 HLH-30A/f20/L150 》



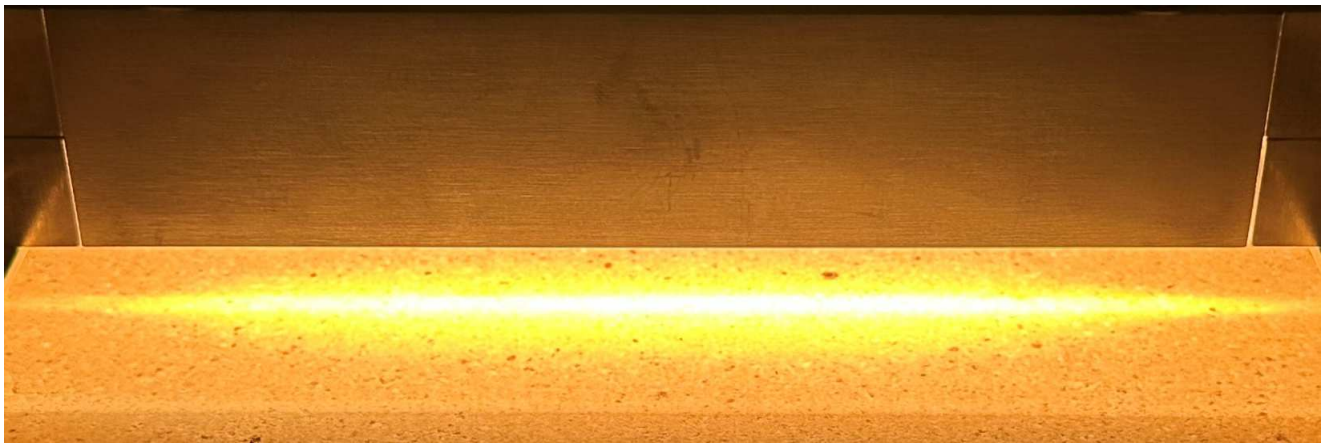
《 HLH-30W/f20/L84･L152･L318 》

10-3. Focal length and focal width of HLH-30



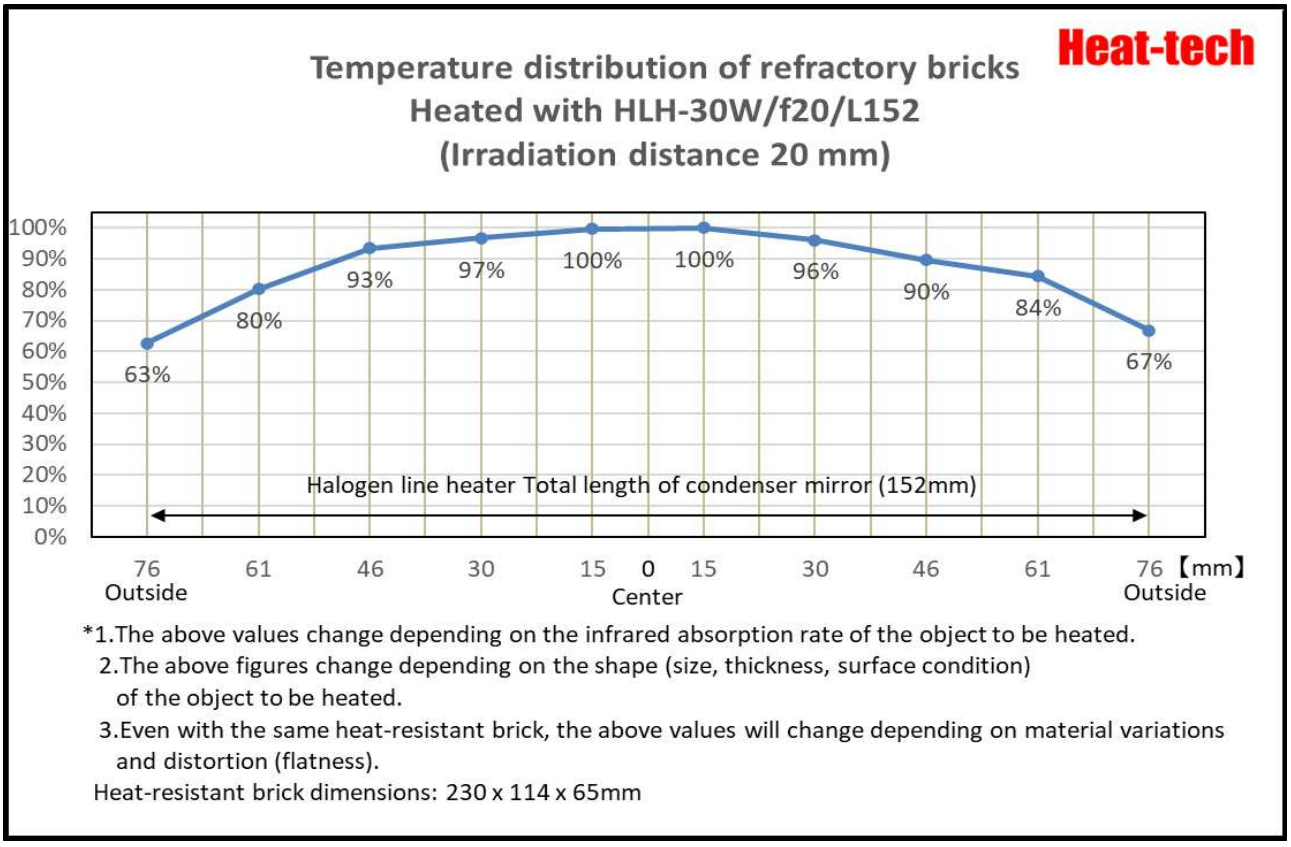
If HLH-30 is separated from a focal length (20mm), it can also perform heating which gave width.
Irradiation intensity is even, but the temperature of the center of the higher heat of the peripheral portion is run away.

※ The optical performance of the HLH-30A and the water-cooled type HLH-30W are the same.



Refractory bricks are irradiated with HLH-30W/f30/L152 from a rated distance of 20mm.

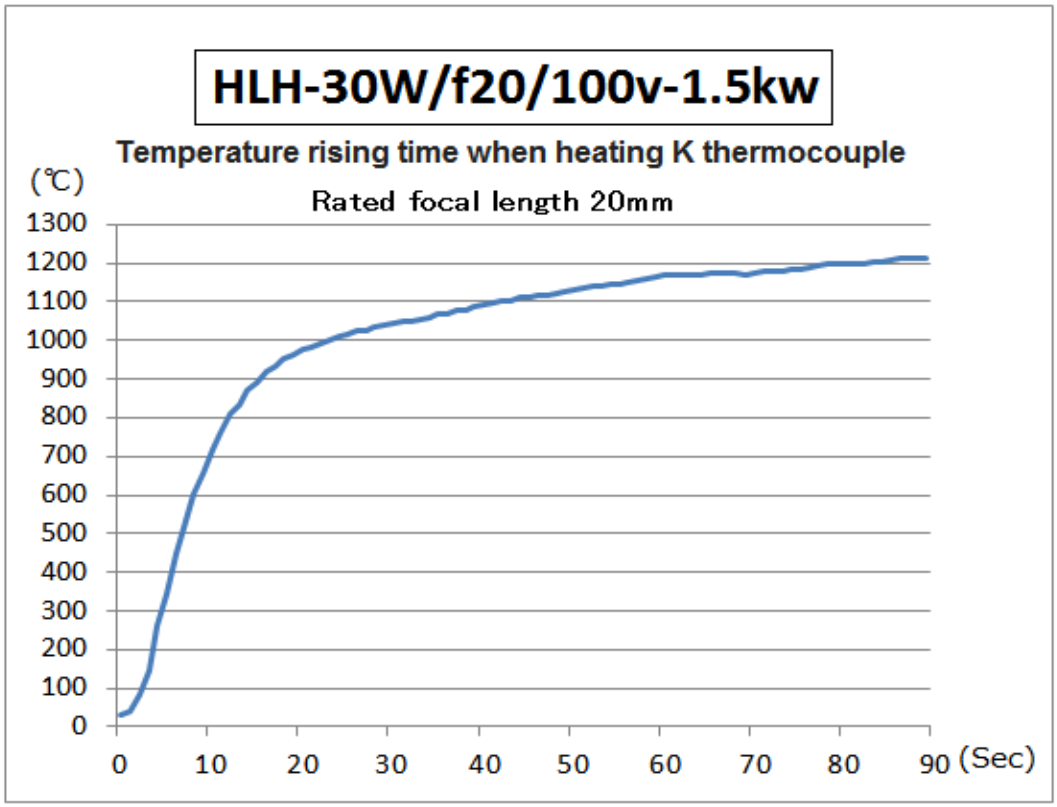
Thermal image taken with a thermography camera



From the thermal image, divide the 152 mm area of the condenser mirror of the halogen line heater into 10 areas, divide the maximum temperature of each divided area by the maximum temperature of the entire area, and quantify the temperature distribution of the heat-resistant bricks.

Since it is a rod-shaped lamp, the irradiation intensity is uniform, but the incident heat to the object to be heated is dissipated to the outside, and the temperature in the center, where heat dissipation is low, rises.

10-4.Heat-up time for HLH-30



【Please note】

In infrared heating, the heating temperature changes depending on the infrared absorption rate of the object.

When it is irradiated for a long time, it becomes high temperature.

10-5. Configuration of HLH-30

Condenser mirror D/#	Mirror length	Focus	Cooling type
HLH-30A/f20/L84	84mm	20mm	Fan air cooling type
HLH-30A/f20/L152	152mm	20mm	
HLH-30A/f20/L318	318mm	20mm	
HLH-30A/f20/L□	Specified	20mm	
HLH-30W/f20/L84	84mm	20mm	Water cooling built-in
HLH-30W/f20/L152	152mm	20mm	
HLH-30W/f20/L318	318mm	20mm	
HLH-30W/f20/L□	Specified	20mm	

Lamp D/#	Mirror length	Volt-PoWer	Design life
HLH-30/L84/110V-500W	84mm	110V-500W	1500h
HLH-30/L84/200V-500W	84mm	220V-500W	1500h
HLH-30/L84/200V-850W	84mm	200V-850W	800h
HLH-30/L152/100V-1kW	152mm	100V-1kW	5000h
HLH-30/L152/200V-1kW	152mm	200V-1kW	1500h
HLH-30/L318/200V-2kW	318mm	200V-2kW	5000h
HLH-30/L318/200V-3kW	318mm	200V-3kW	1500h
HLH-30/L□/□V-□kW	Specified	Specified	

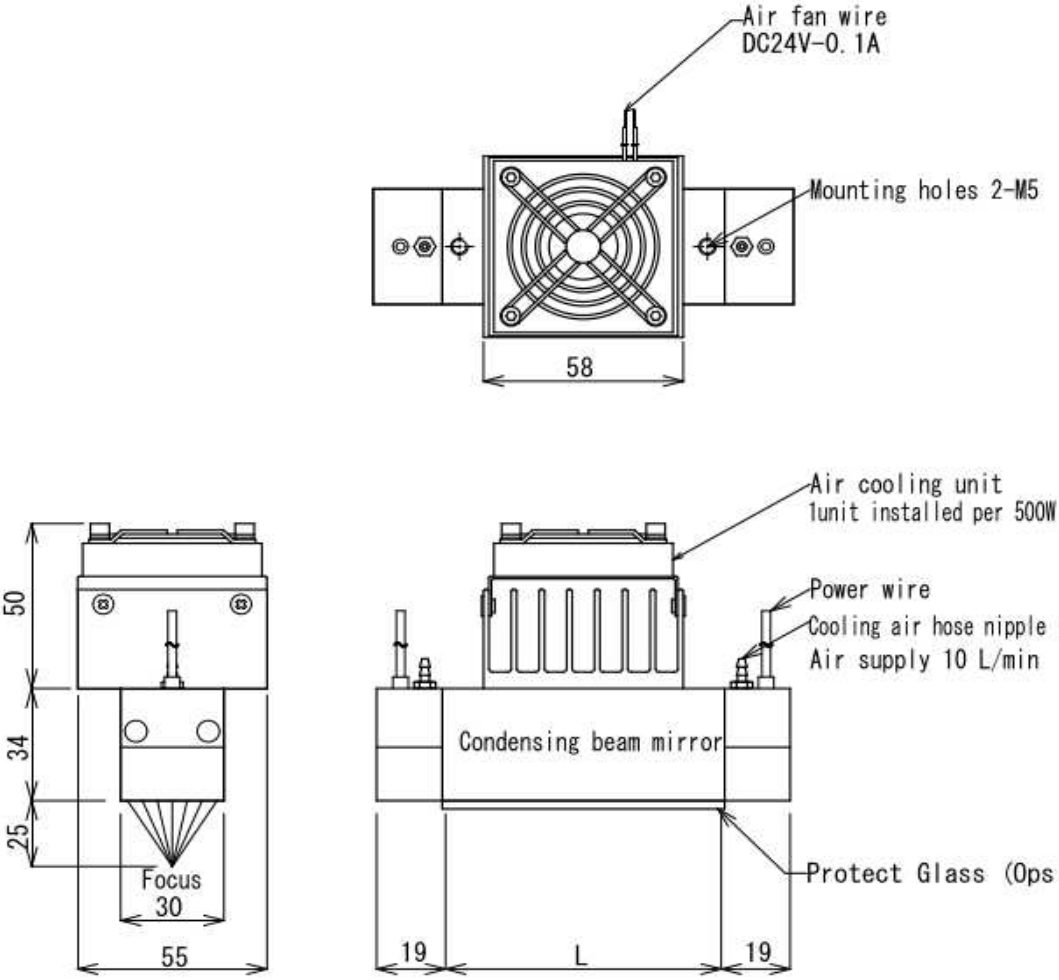
Options	Items
HLH-30/L□/GW	Protect heat-resistant glass □=Specified length
HLH-30/L□/QW	Protect quartz glass □=Specified length
P□	Power wire □=Specified length
(+V)	Vertical lamp (For arm robot)
GP	Gold plated condenser mirror

HLH-30 Will order with the following items specified.
Cooling type, length of condensing mirror, Voltage of halogen lamp, output of halogen lamp, length of power supply wire,

Model specified example Fan air cooling type HLH-30A/f20/L152/200V-1kW/P3m

The heating performance is the same whether it is air-cooled or water-cooled.

10-6.Outline drawing of HLH-30



【 Note 】

① Please do not give vibration, tungsten filament of high fever is fragile.
② Please install the parallelism within ±3.
③ Please use Vertical Lamp when installed in the parallelism over ±3, and used vertically.
④ Mounting holes will vary depending on length mirror.
⑤ Air cooling effect is reduced in the location of the high temperature,
at such time please use the HLH-30W Water-cooled type.
⑥ Width of the focusing beam is the same as the thinness coil diameter of the tungsten filament.

【 Specification at the time of ordering 】

□V-□W Specifying voltage and wattage]

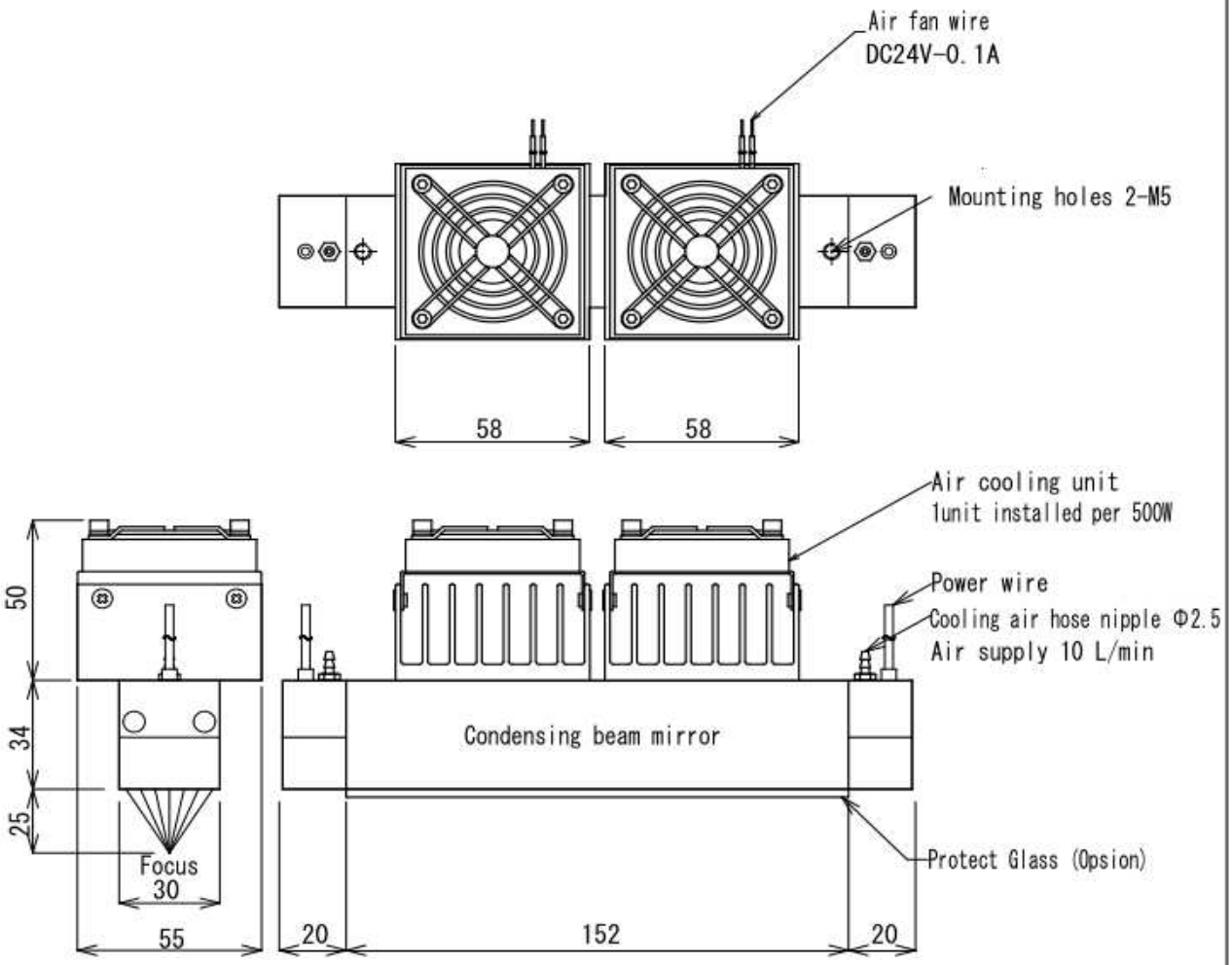
【 Option & Special order 】

/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard			Special Order			
Focus f	f20						
Mirror Length L	82mm	152mm	318mm	50～1300mm			
Voltage	110V	100V/200V	200V	100V	220V	400V	600V
Power	500W	1kW	2kW	2kW	4kW	8kW	12kW
D/#	HLH-30A/f20/L□/□V-□W/Option						
Model	Air cooling condensing beam type Halogen Line Heater						

Date	Drawing number
2023.03.30	HLH-E1

Heat-tech



【 Note 】

① Please do not give vibration, tungsten filament of high fever is fragile.
② Please install the parallelism within ±3.
③ Please use Vertical Lamp when installed in the parallelism over ±3, and used vertically.
④ Mounting holes will vary depending on length mirror.
⑤ Air cooling effect is reduced in the location of the high temperature,
at such time please use the HLH-30W Water-cooled type.
⑥ Width of the focusing beam is the same as the thinness coil diameter of the tungsten filament.

【 Specification at the time of ordering 】

□V-□W Specifying voltage and wattage

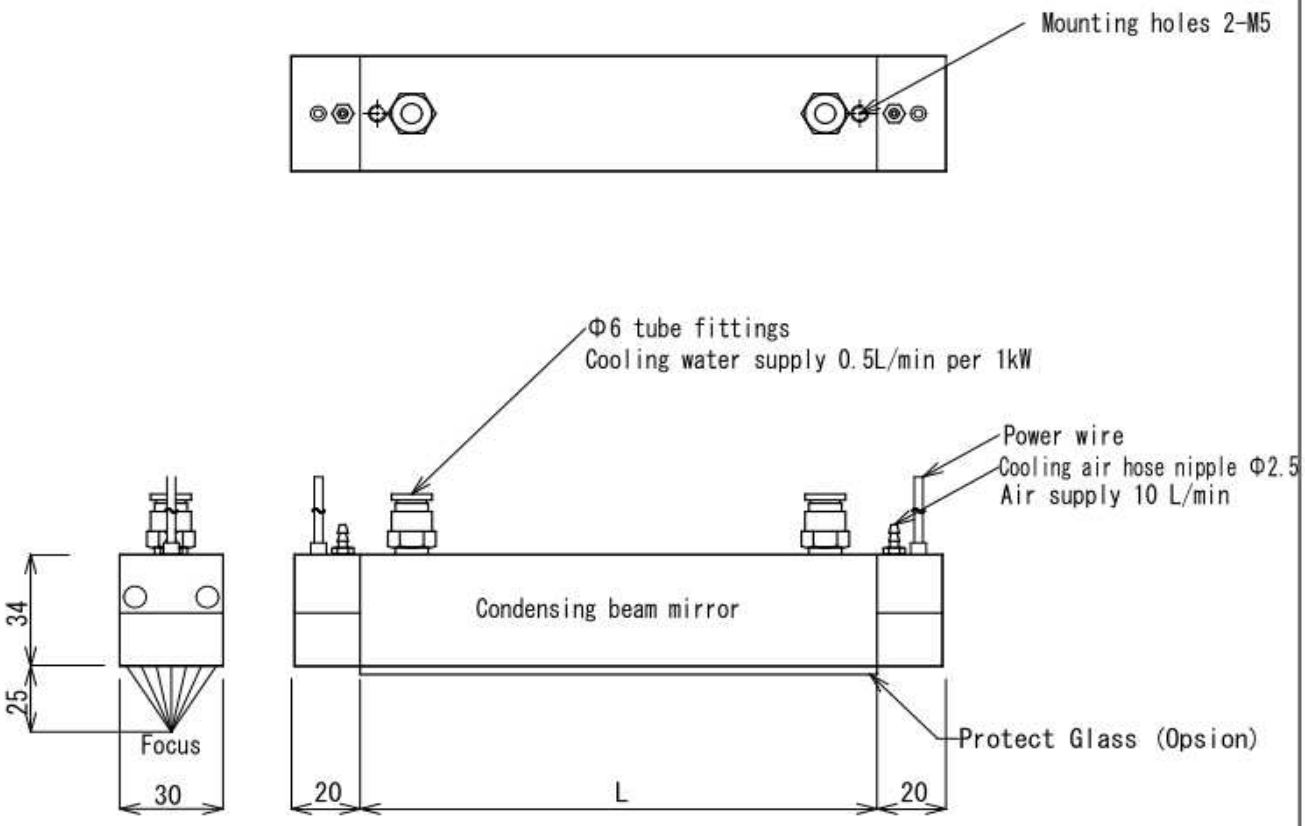
【 Option & Special order 】

/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard
Focus f	f20
Mirror Length L	152mm
Voltage	100V
Power	1kW
D/#	HLH-30A/f20/L152/100V-1kW/Option
Model	Air cooling condensing beam type Halogen Line Heater

Date	Drawing number
2023.03.30	HLH-E2

Heat-tech



【 Note 】

① Please do not give vibration, tungsten filament of high fever is fragile.
② Please install the parallelism within ±3.
③ Please use Vertical Lamp when installed in the parallelism over ±3, and used vertically.
④ Mounting holes will vary depending on length mirror.
⑤ Width of the focusing beam is the same as the thinness coil diameter of the tungsten filament.

【 Specification at the time of ordering 】

□V-□W Specifying voltage and wattage

【 Option & Special order 】

/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard			Special Order			
Focus f	f20						
Mirror Length L	82mm	150mm	318mm	50～1300mm			
Voltage	110V	100V/200V	200V	100V	220V	400V	600V
Power	500W	1kW	2/3kW	2kW	4kW	8kW	12kW
D/#	HLH-30W/f20/L□/□V-□W/Option						
Model	Water cooling condensing beam type Halogen Line Heater						

Date	Drawing number
2023.03.30	HLH-E3

Heat-tech

11 Ultra small HLH-35 series for plane heating

11-1.Features of HLH-35

1) HLH-35 can heat up to 900℃.

Ultra compact line heater HLH-35 is a line concentrating heating unit using a rod - shaped halogen lamp.

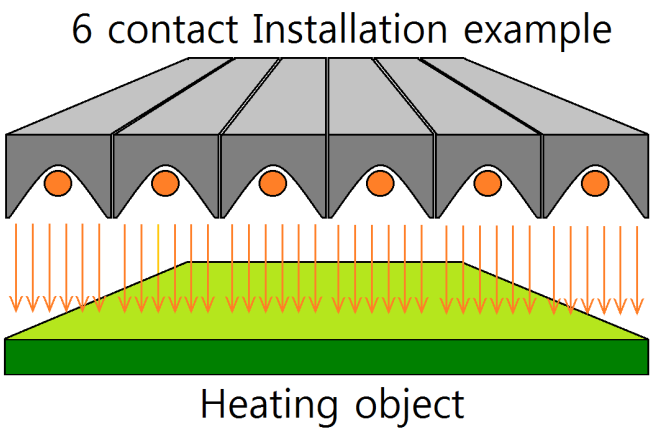
The product concept "a small thing." It is microminiature with condenser miror width 35mm and height 36mm.
The condenser mirror surface adopted a complex curved surface of an ellipse and a circle to overcome the downside due to miniaturization.
HLH-35 is being done small to the limit while maintaining high performance, so it's extraordinarily small, the best heating temperature is about 1000 ℃.

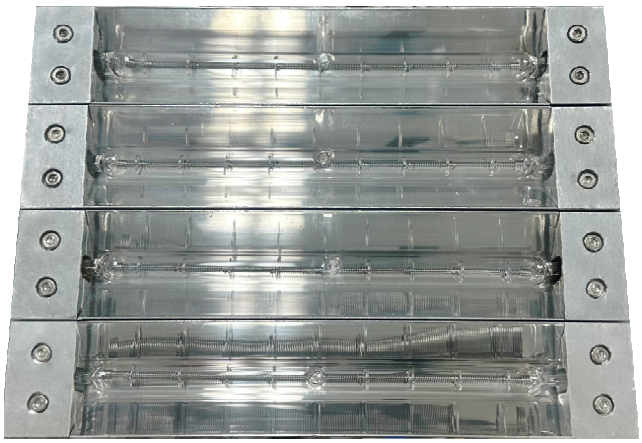
2) A perfect clean heating is realized, heating in a clean room or vacuum chamber is also possible.

The water-cooled type can be used by a vacuum chamber.
When it is placed in a vacuum chamber, there is gas emission which is slightly from inorganic glue in an early stage, so vacuum treatment is needed beforehand.

3) Used side by side, plate heating is possible.

Irradiation power density reached 35w/cm2 to be used side by side, it is heated up to 1000 ℃ near a wide area.
Even with the same parallel light type, HLH - 60W with a light recovery type hood is superior in case of relatively long irradiation distance or single use.
However, in the case where the irradiation distance is relatively short and plural units are arranged in parallel to perform surface heating, we recommend this parallel light type line heater unit HLH - 35 W / f

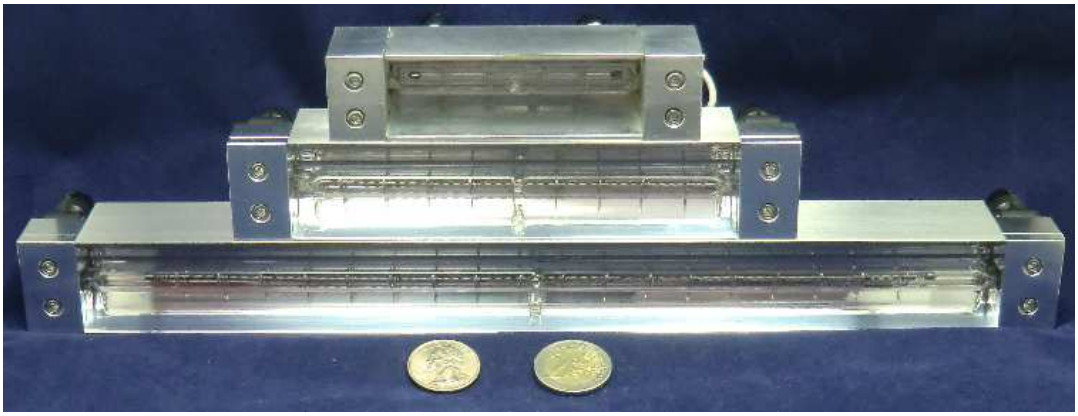




11-2. External view of HLH-35

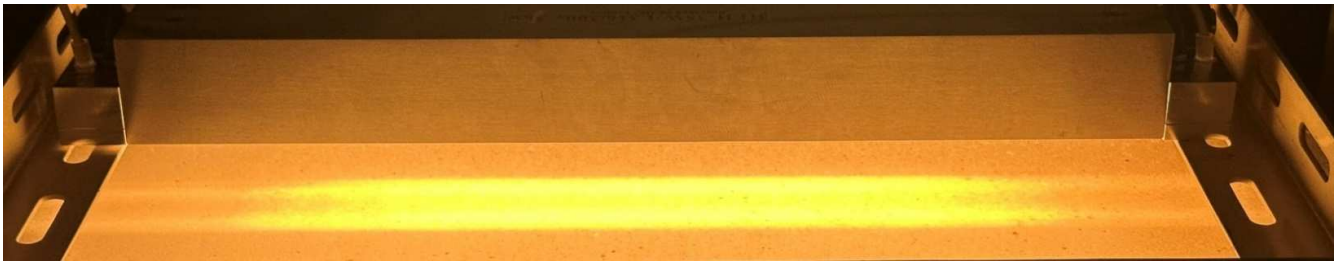
《 HLH-35A/f∞/L150 》

《 HLH-35A/f∞/L316 》

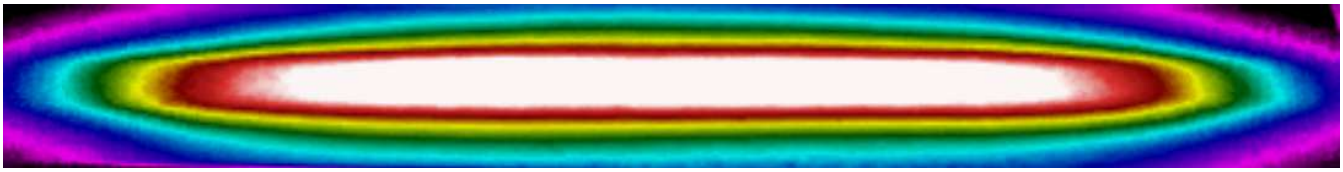


《 HLH-35W/f∞/L82・L150・L316 》

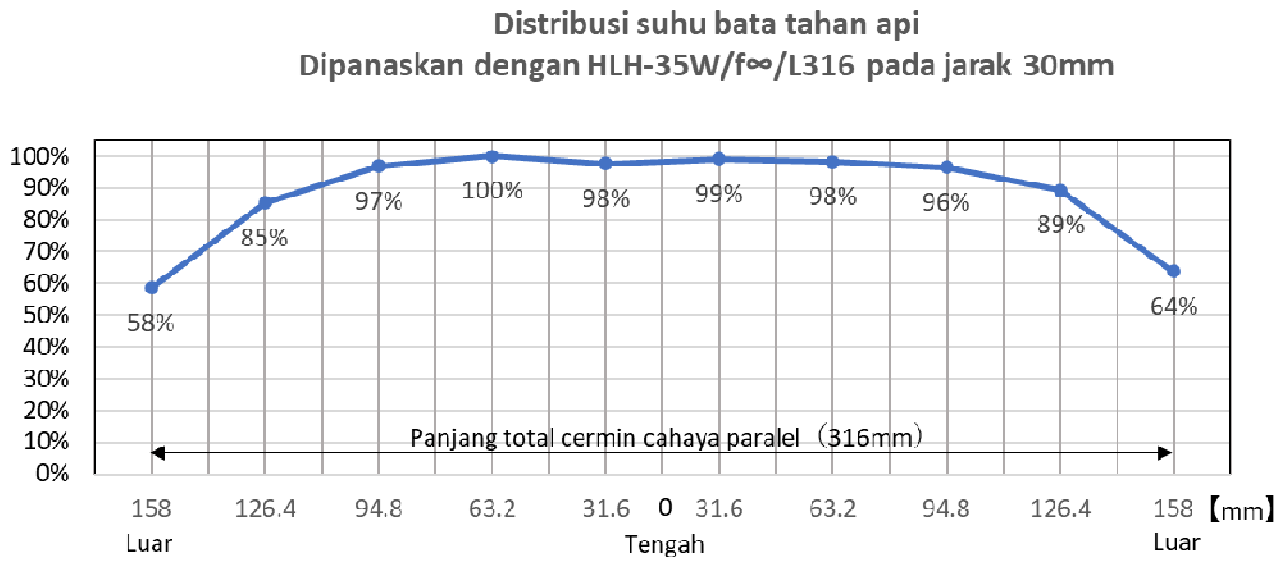
11-3. Focal length and focal width of HLH-35



HLH-35W/f∞/L316 irradiates refractory bricks from a distance of 30mm.



Thermal image taken with a thermography camera



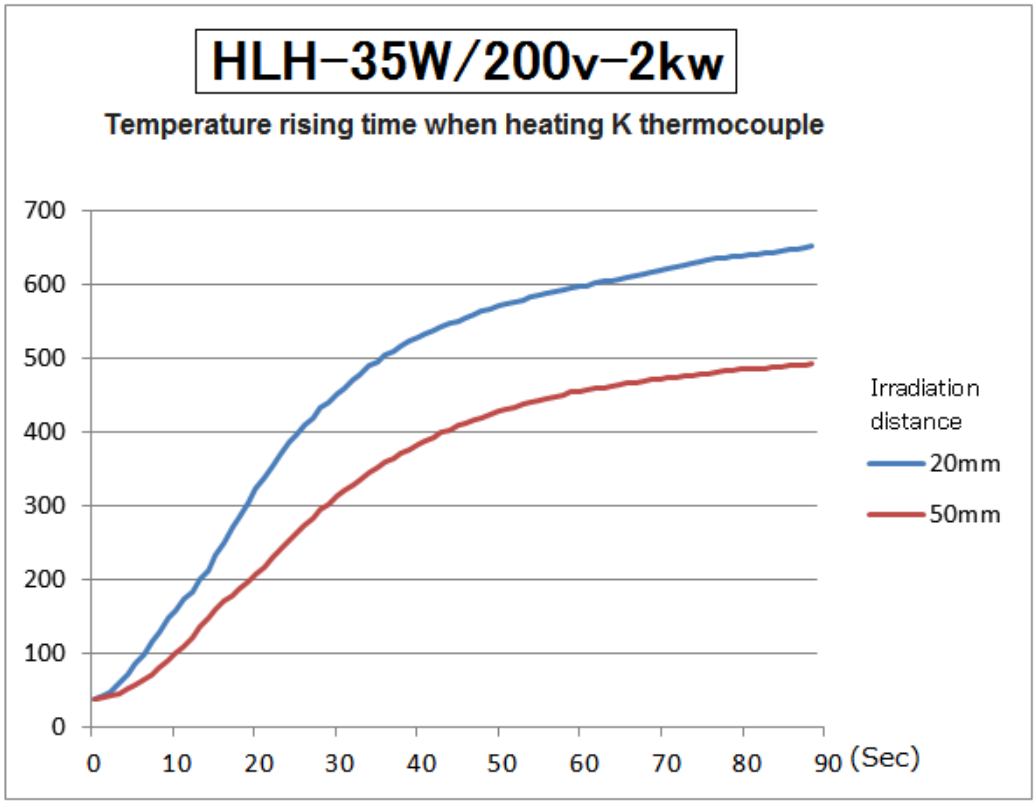
*1.Nilai di atas berubah tergantung pada tingkat penyerapan inframerah dari objek yang akan dipanaskan.
2.Angka di atas berubah tergantung bentuk (ukuran, ketebalan, kondisi permukaan) benda yang akan dipanaskan.
3. Bahkan dengan batu bata tahan panas yang sama, nilai di atas dapat bervariasi karena variasi kualitas.

Dimensi bata tahan panas: 456mm x 230mm x 65mm

From the thermal image, divide the 316 mm area of the condenser mirror of the halogen line heater into 10 areas, divide the maximum temperature of each divided area by the maximum temperature of the entire area, and quantify the temperature distribution of the heat-resistant bricks.

Since it is a rod-shaped lamp, the irradiation intensity is uniform, but the incident heat to the object to be heated is dissipated to the outside, and the temperature in the center, where heat dissipation is low, rises.

11-4.Heat-up time for HLH-35



【Please note】

In infrared heating, the heating temperature changes depending on the infrared absorption rate of the object.

When it is irradiated for a long time, it becomes high temperature.

11-5. Configuration of HLH-35

Parallel beam mirror D/#	Mirror length	Focus	Cooling type
HLH-35A/f∞/L82	82mm	∞	Fan air cooling type
HLH-35A/f∞/L150	150mm	∞	
HLH-35A/f∞/L316	316mm	∞	
HLH-35A/f∞/L□	Specified	∞	
HLH-35W/f∞/L82	82mm	∞	Water cooling built-in
HLH-35W/f∞/L150	150mm	∞	
HLH-35W/f∞/L316	316mm	∞	
HLH-35W/f∞/L□	Specified	∞	

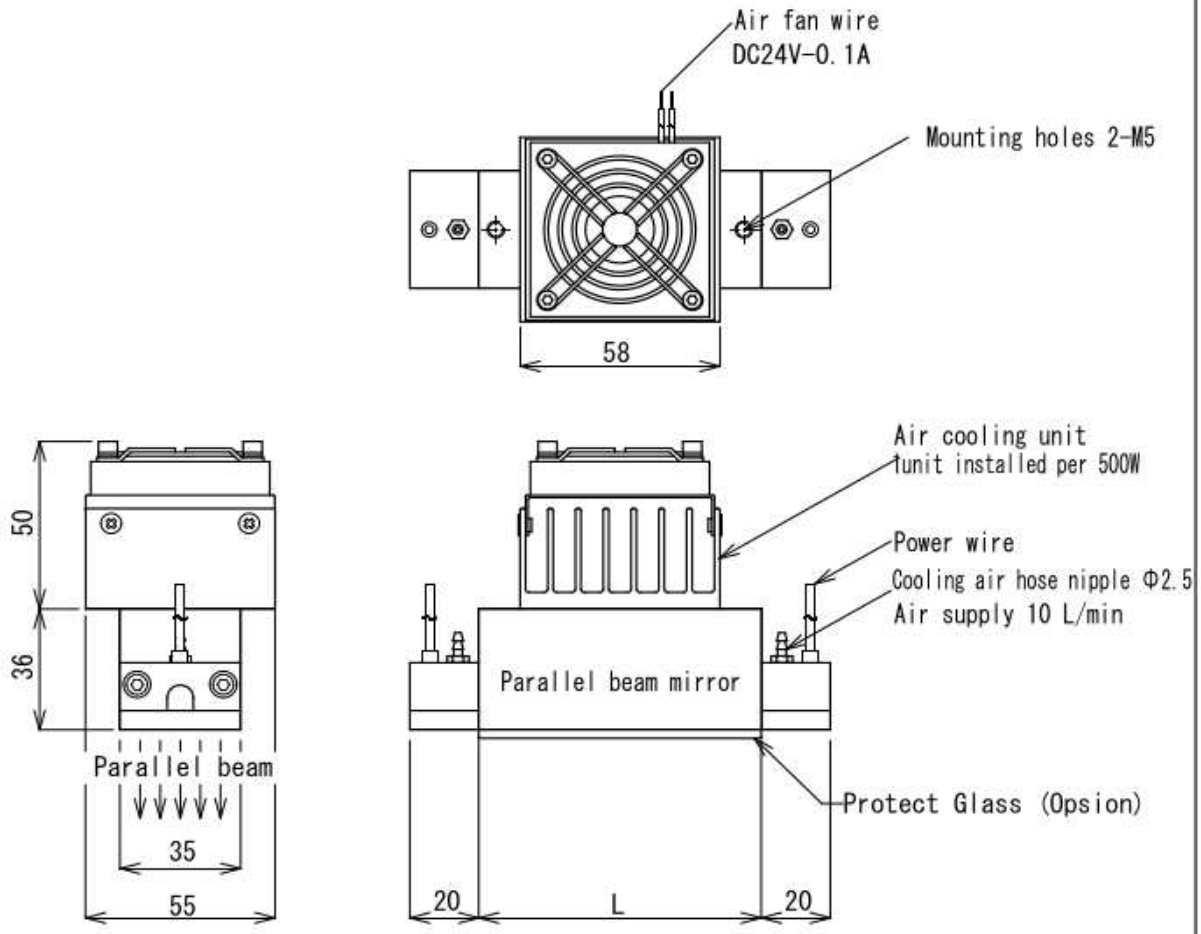
Lamp D/#	Mirror length	Volt-Power	Design life
HLH-35/L82/110V-500W	82mm	110V-500W	1500h
HLH-35/L82/200V-500W	82mm	220V-500W	1500h
HLH-35/L82/200V-850W	82mm	200V-850W	800h
HLH-35/L150/100V-1kW	150mm	100V-1kW	5000h
HLH-35/L150/200V-1kW	150mm	200V-1kW	1500h
HLH-35/L316/200V-2kW	316mm	200V-2kW	5000h
HLH-35/L316/200V-3kW	316mm	200V-3kW	1500h
HLH-35/L□/□v-□kW	Specified	Specified	

Options	Items
HLH-35/L□/GW	Protect heat-resistant glass □=Specified length
HLH-35/L□/QW	Protect quartz glass □=Specified length
P□	Power wire □=Specified length
(+V)	Vertical lamp (For arm robot)
GP	Gold plated parallel beam mirror

HLH-35 will order with the following items specified.
Cooling type, length of parallel beam mirror, voltage of halogen lamp, output of halogen lamp, fan type, length of power supply wire,

Model specified example Fan air cooling type HLH-35A/f∞/L150/200V-1kW/P3m

11-6. Outline drawing of HLH-35



【 Note 】

① Please do not give vibration, tungsten filament of high fever is fragile.
② Please install the parallelism within ±3.
③ Please use Vertical Lamp when installed in the parallelism over ±3, and used vertically.
④ Mounting holes will vary depending on length mirror.
⑤ Air cooling effect is reduced in the location of the high temperature,
at such time please use the HLH-35W Water-cooled type.

【 Specification at the time of ordering 】

□V-□W Specifying voltage and wattage

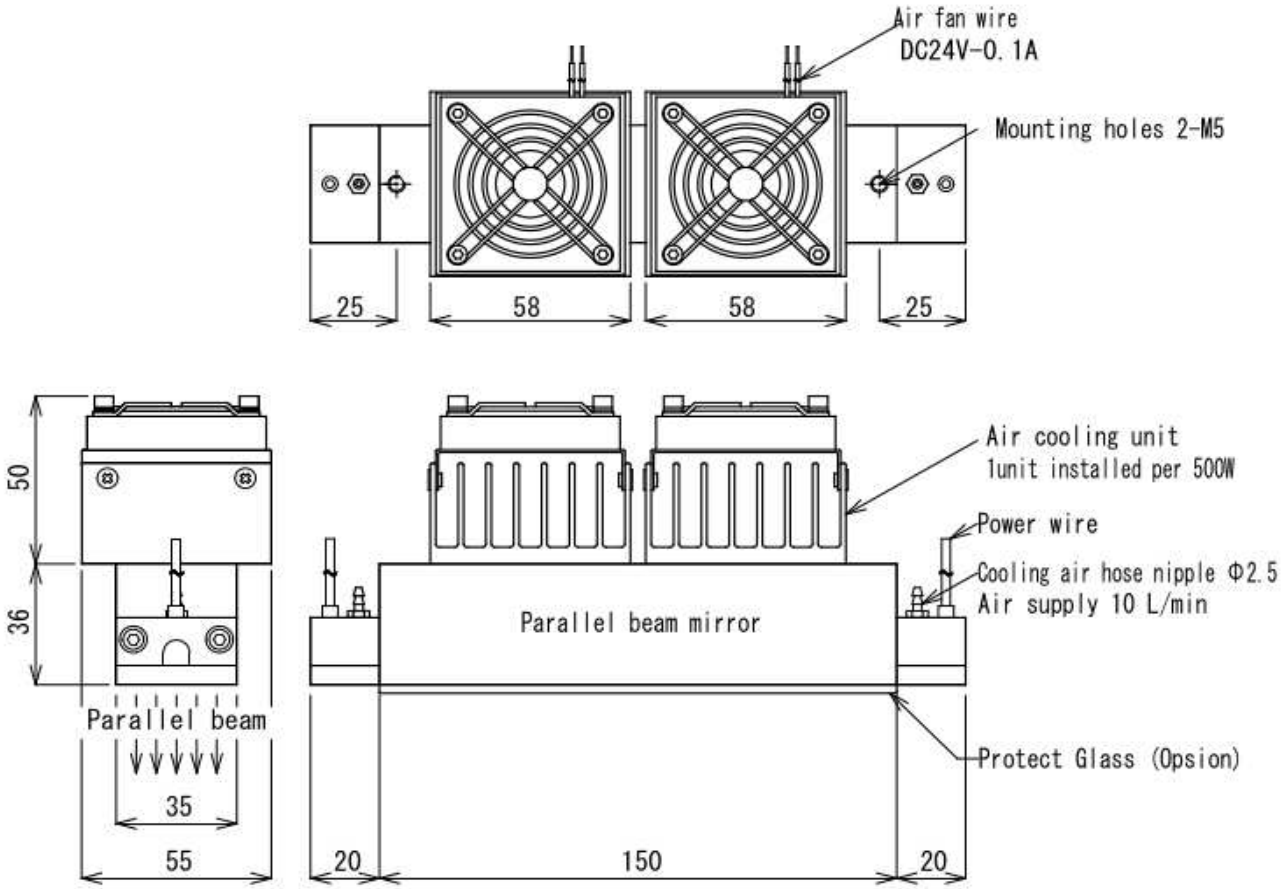
【 Option & Special order 】

/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard			Special Order			
Focus f	f∞ (Parallelbeam)						
Mirror Length L	82mm	150mm	316mm	50～1300mm			
Voltage	110V	100V/200V	200V	100V	220V	400V	600V
Power	500W	1kW	2kW	2kW	4kW	8kW	12kW
D/#	HLH-35A/f∞/L□/□V-□W/Option						
Model	Air cooling parallel beam type Halogen Line Heater						

Date	Drawing number
2023.03.30	HLH-E4

Heat-tech



【 Note 】

① Please do not give vibration, tungsten filament of high fever is fragile.
② Please install the parallelism within ±3.
③ Please use Vertical Lamp when installed in the parallelism over ±3, and used vertically.
④ Mounting holes will vary depending on length mirror.
⑤ Air cooling effect is reduced in the location of the high temperature,
at such time please use the HLH-35W Water-cooled type.

【 Specification at the time of ordering 】

□V-□W Specifying voltage and wattage]

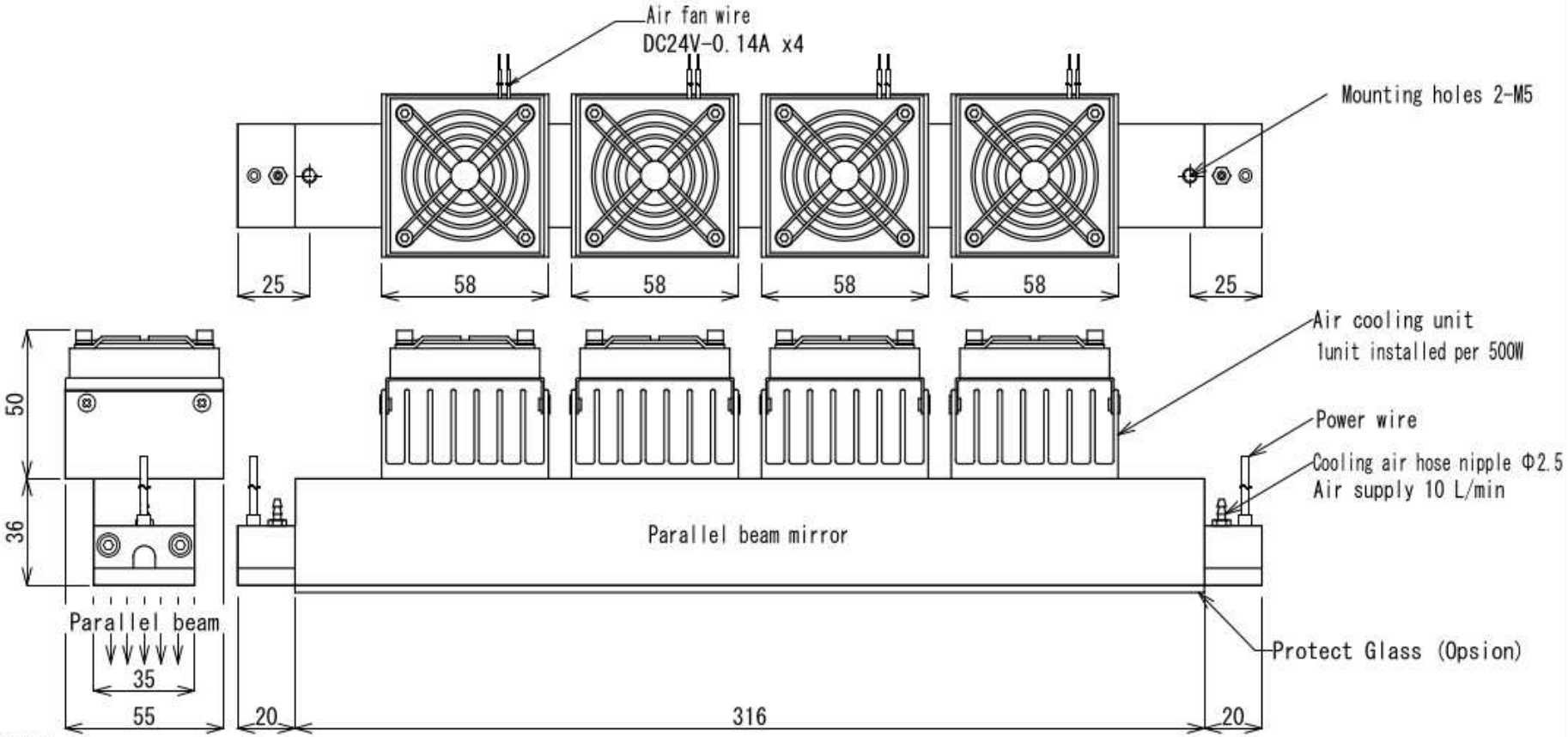
【 Option & Special order 】

/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard
Focus f	f∞ (Parallel beam)
Mirror Length L	150mm
Voltage	100V
Power	1kW
D/#	HLH-35A/f∞/L150/100V-1kW/Opsional
Model	Air cooling parallel beam type Halogen Line Heater

Date	Drawing number
2023.03.30	HLH-E5

Heat-tech



【 Note 】

① Please do not give vibration, tungsten filament of high fever is fragile.
② Please install the parallelism within ±3.
③ Please use Vertical Lamp when installed in the parallelism over ±3, and used vertically.
④ Mounting holes will vary depending on length mirror.
⑤ Air cooling effect is reduced in the location of the high temperature, at such time please use the HLH-35W Water-cooled type.

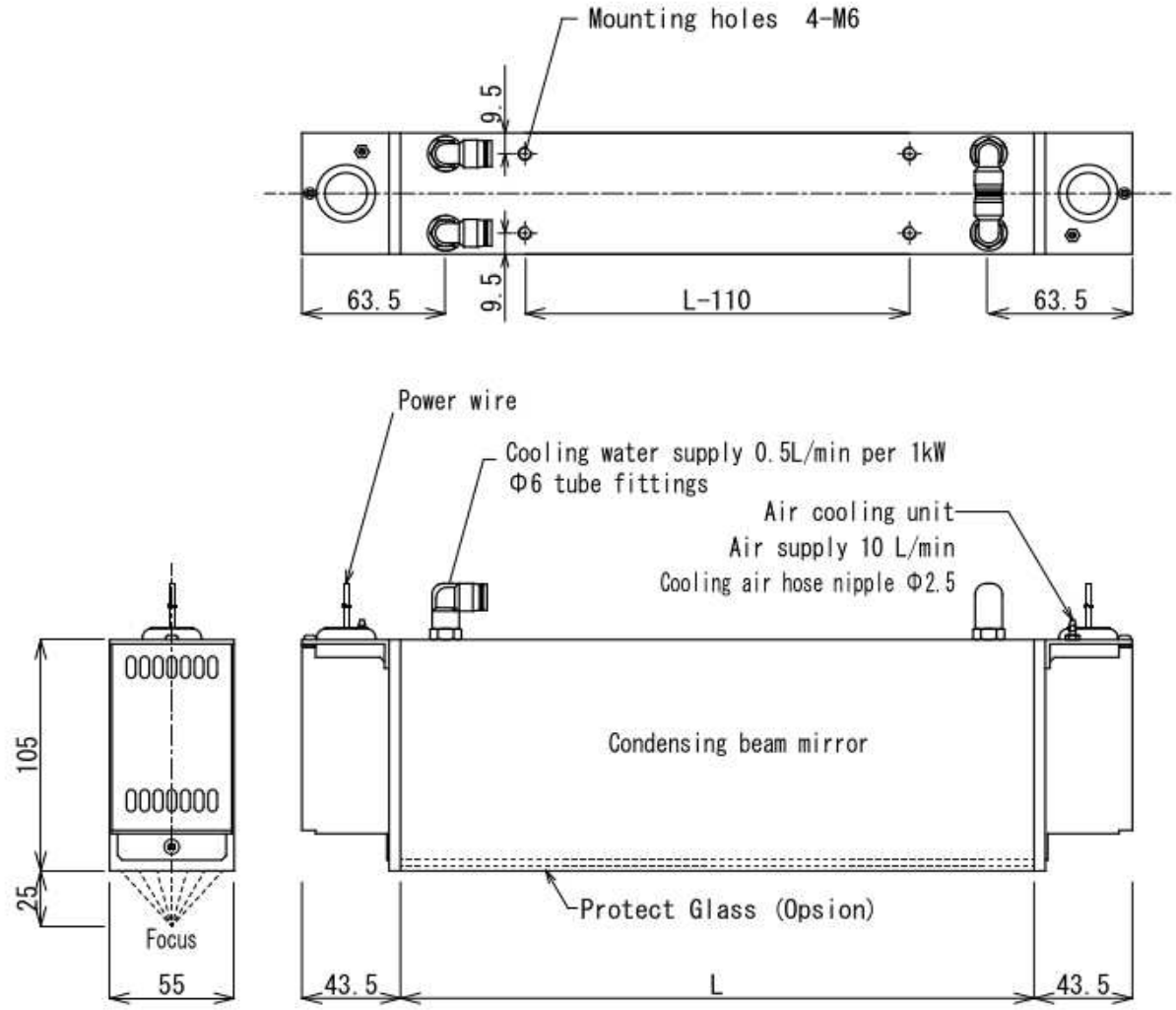
【 Option & Special order 】

/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Focus f	f∞ (Paralel beam)
Mirror Length L	316mm
Voltage	200V
Power	2kW(3kW)
D/#	HLH-35A/f∞/L316/200V-2kW(3kW)/Option
Model	Air cooling parallel beam type Halogen Line Heater

Date	Drawing number
2023.03.30	HLH-E6

Heat-tech



【 Specification at the time of ordering 】
□V-□W Specifying voltage and wattage]

【 Option & Special order 】
/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard			Special Order		
Focus f	f25					
Mirror Length L	280mm			280～2500mm		
Voltage	200V			200V	400V	600V
Power	2kW	3kW	5kW	2kw～6kw	12kW	16kW
D/#	HLH-55W/f25/L□/□V-□W/					
Model	Air cooling condensing beam type Halogen Line Heater					

Date	Drawing number
2023.03.30	HLH-E12

Heat-tech

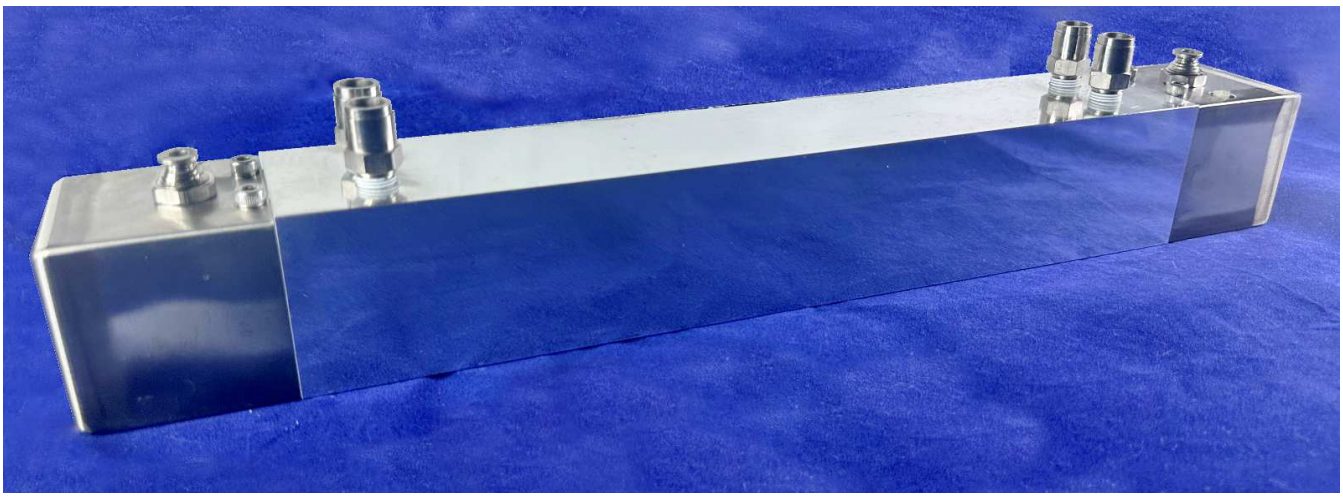
13 High power HLH-40 series for plane heating

13-1.Features of HLH-50

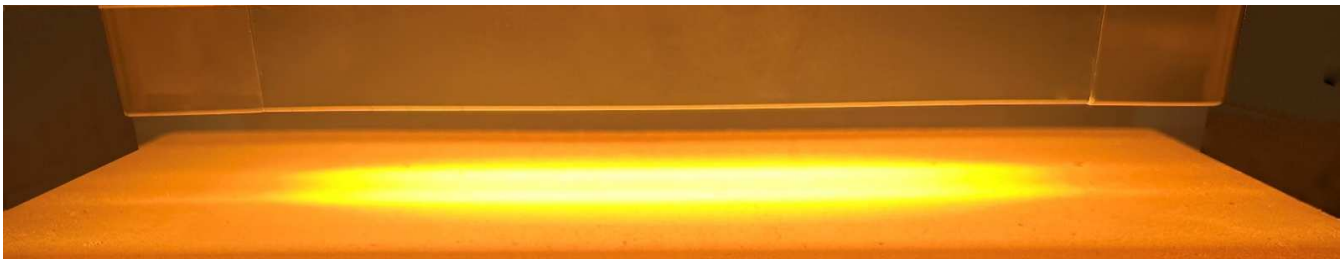
1) It can be heated up to 1050℃ in strips.
The high-performance line heater HLH-50 is a band-shaped light heating unit that uses a rod-shaped halogen lar
Heating time is short, parallel mirror width 50 mm, parallel light (focal length ∞), can be heated in a belt shape.

2) Miniaturization of high output
A high-output 5 kW halogen lamp is used to reduce the size.
The vertical length of the parallel light mirror is 50 mm. It can also be used in narrow installation locations.
Also, since it is 50mm wide, it is about the same as 20 inches. Installation on products designed in inches is also

13-2. External view of HLH-50

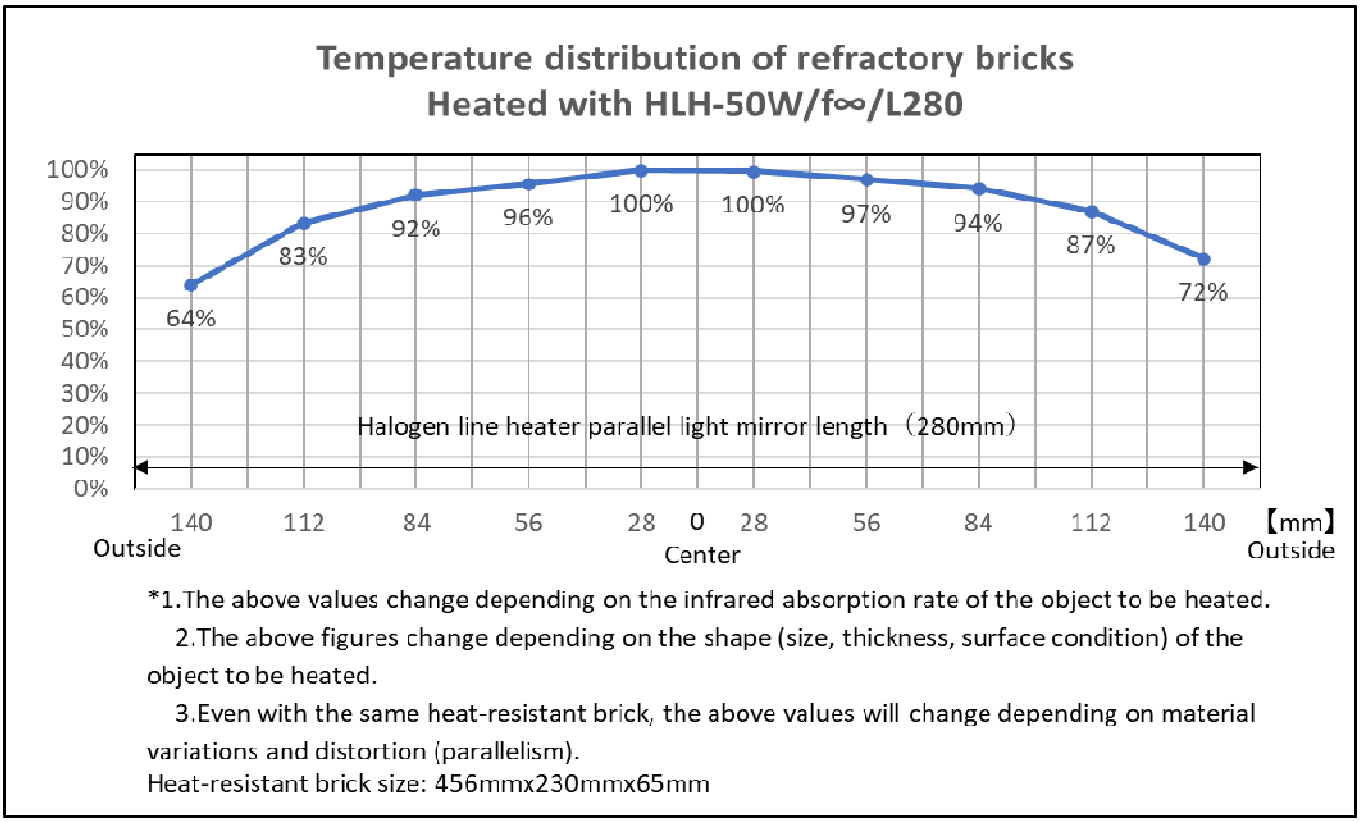


13-3. Focal length and focal width of HLH-50



HLH-50W/f∞/L280 irradiates refractory bricks at a distance of 30mm.

Thermal image taken with a thermography camera



*1.The above values change depending on the infrared absorption rate of the object to be heated.

2.The above figures change depending on the shape (size, thickness, surface condition) of the object to be heated.

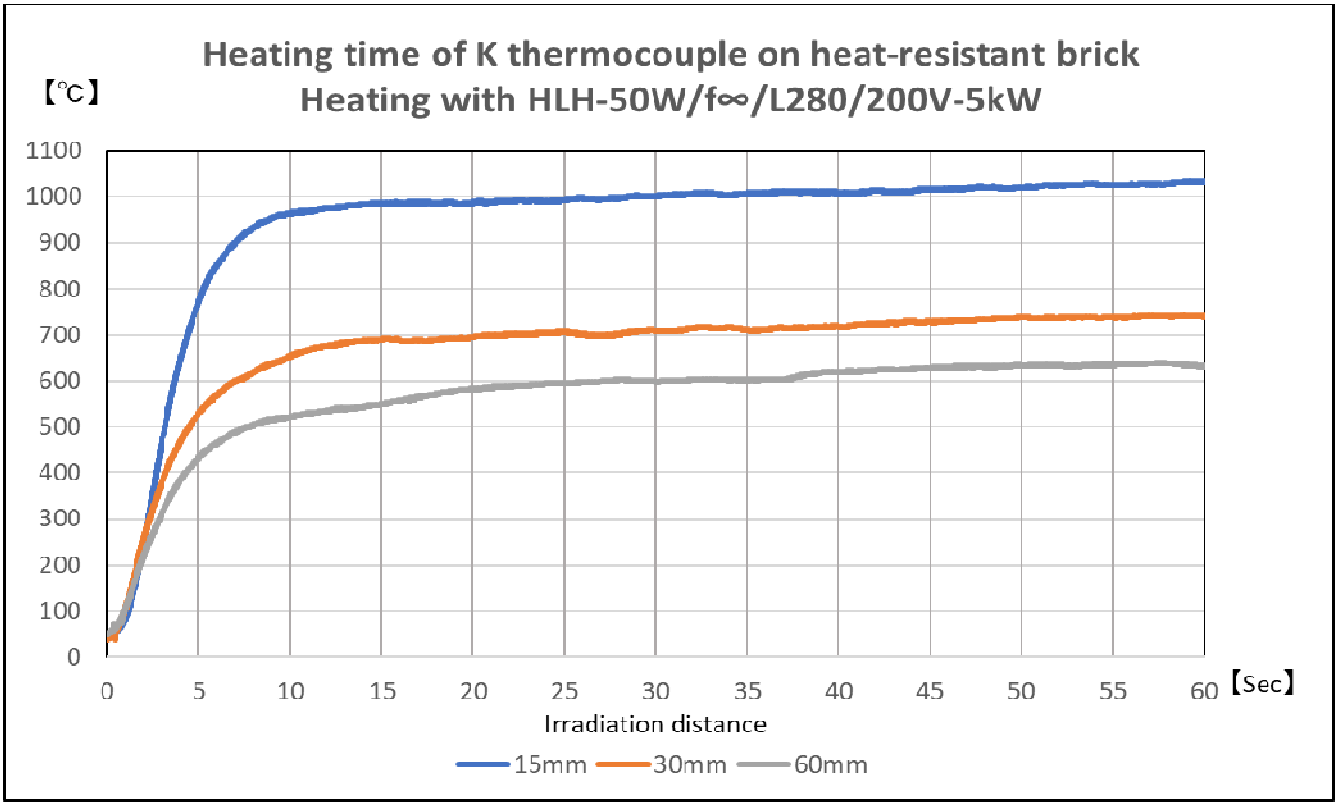
3.Even with the same heat-resistant brick, the above values will change depending on material variations and distortion (parallelism).

Heat-resistant brick size: 456mmx230mmx65mm

From the thermal image, divide the 280 mm area of the condenser mirror of the halogen line heater into 10 areas, divide the maximum temperature of each divided area by the maximum temperature of the entire area, and quantify the temperature distribution of the heat-resistant bricks.

Since it is a rod-shaped lamp, the irradiation intensity is uniform, but the incident heat to the object to be heated is dissipated to the outside, and the temperature in the center, where heat dissipation is low, rises.

13-4.Heat-up time for HLH-50



【Please note】

In infrared heating, the heating temperature changes depending on the infrared absorption rate of the object.

When it is irradiated for a long time, it becomes high temperature.

13-5. Configuration of HLH-50

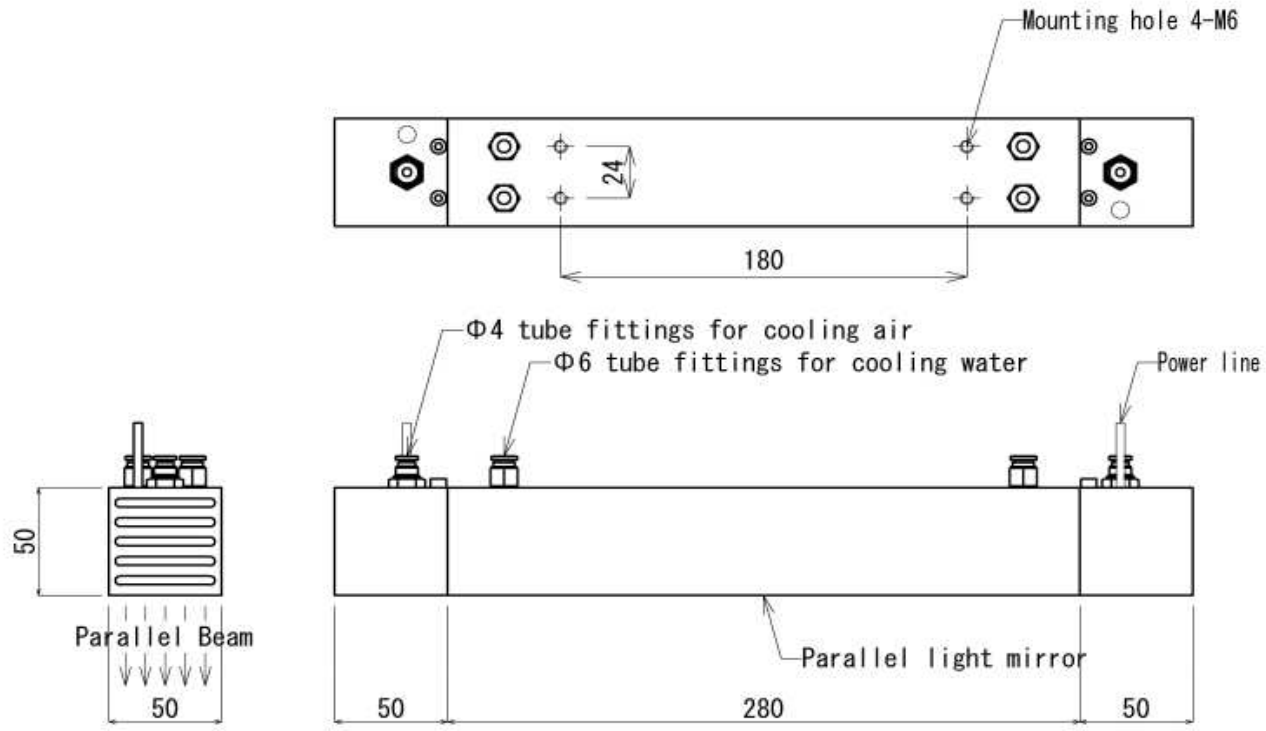
Parallel Mirror D/#	Mirror Length	Focus	Cooling Type
HLH-50W/f∞/L280	280mm	∞	Water cooling

Lamp D/#	Mirror Length	Volt-Power	Design Life
HLH-50/L280/200V-2kW	280mm	200V-2kW	5000 h
HLH-50/L280/200V-3kW	280mm	200V-3kW	1000 h
HLH-50/L280/200V-5kW	280mm	200V-5kW	1000 h

Options	Items
P□m	Power wire □m　Specified length
（+V）	Vertical lamp
GP	Gold plated parallel mirror
QW	Quartz glass (for parallel light mirror protection)

Please specify the following items when ordering.
Cooling method, condenser mirror length, power supply voltage, power supply line length
Model designation example HLH-50W/f∞/L280/200V-2kW/P3m

13-6. Outline drawing of HLH-50



【[Specifications when ordering]】
□V-□W Voltage-power designation

【Optipns】
/P□m Power wire □m Specified length
/+V Vertical lamp
/+GP Gold plated parallel mirror
/QW Quartz glass(for mirror protection)

【Notes】
①A high temperature tungsten filament becomes soft and brittle. Please do not vibrate.
②Install with parallelism within ±3° .
③For vertical installation, use the optional vertical specification lamp (+V).

Focus	f∞ (Parallel Beam)		
Mirror L	280mm		
Voltage	200V		
Power	2kW	3kW	5kW
D/#	HLH-50W/f∞/L280/200V-□W/Option		
Model	Parallel Beam Type Halogen Line Heater		

Date	Drawing number	
2023.06.30	HLH-E14	Heat-tech Co.,Ltd.

14 High power HLH-55 series for line heating

14-1.Features of HLH-55

1) HLH-55 can heat up to a maximum of 1,350 degrees Celsius linearly.

High performance line heater HLH-55 is a line condensing heating unit using a rod shaped halogen lamp. The product concept is "the highest performance", it is possible to output up to about 2 kw per 100 mm condensing mirror.
In the line condensing type puts work on a conveyer as well as linear heating, and whole heating is possible if I irradiate it with a heater.
By using it apart from the focal position, heating with width can be done.

2) A perfect clean heating is realized, heating in a clean room or vacuum chamber is also possible.

The water-cooled type can be used by a vacuum chamber.
When it is placed in a vacuum chamber, there is gas emission which is slightly from inorganic glue in an early stage, so vacuum treatment is needed beforehand.

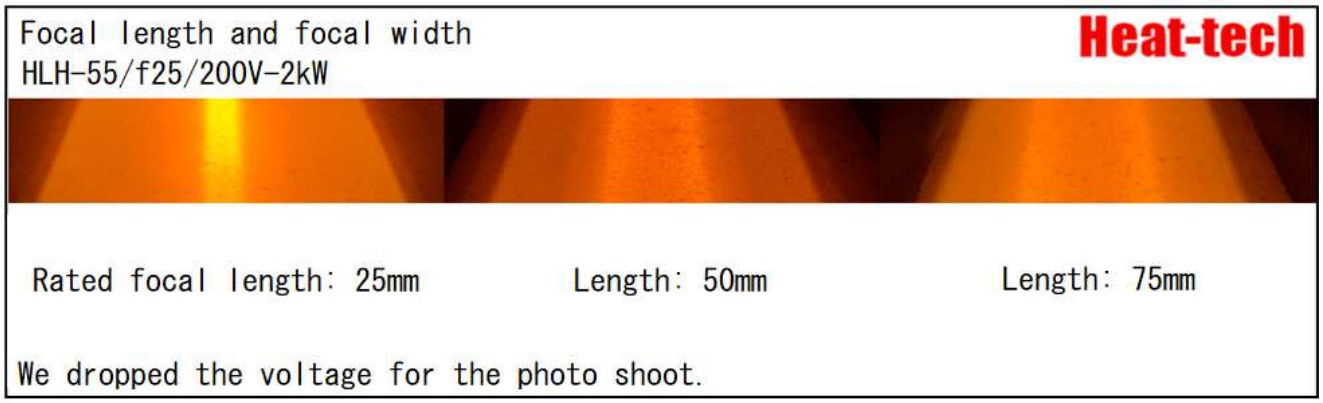
14-2. External view of HLH-55

《HLH-55A/f25/ L 280 DCFAN》

《HLH-55A/f25/L280 ACFAN》

《HLH-55W/f25/280》

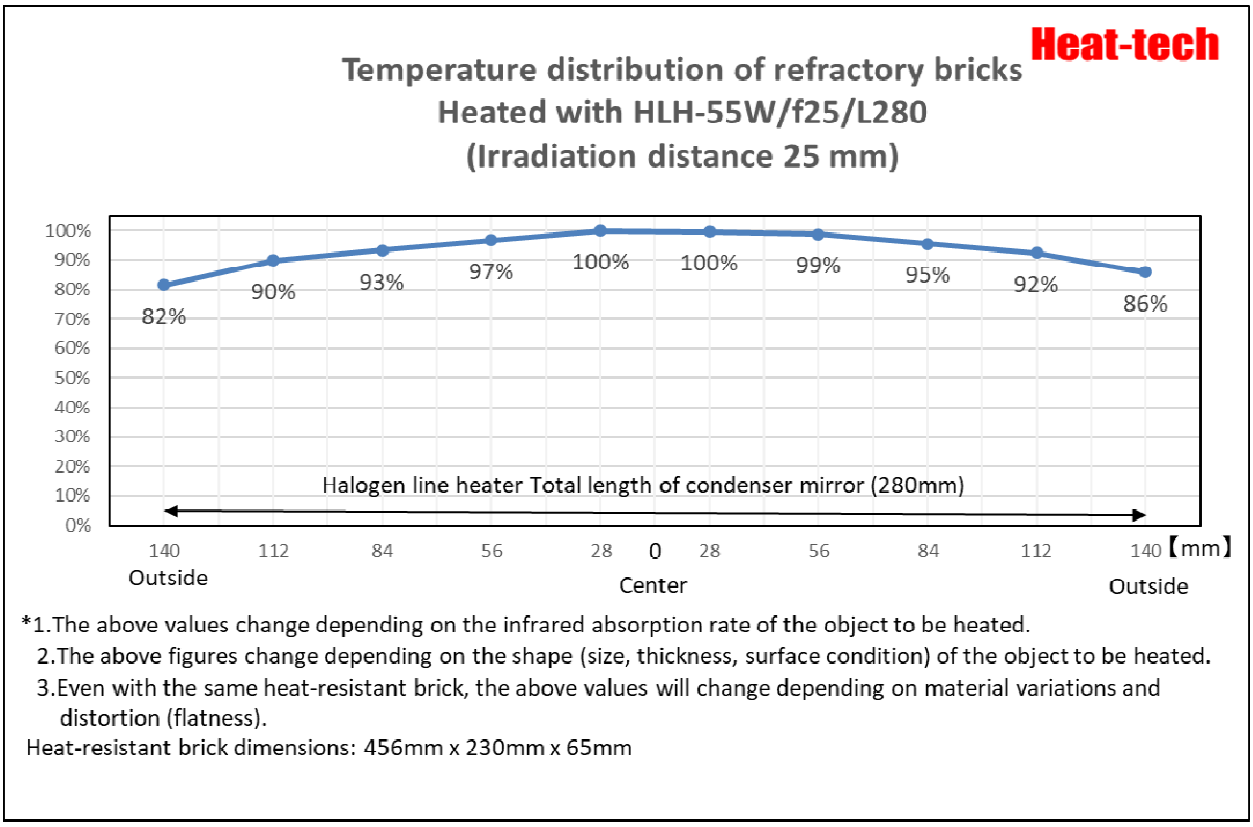
14-3. Focal length and focal width of HLH-55



When move away from the rated focal length (25 mm), user can also heat with a certain width.
Although the irradiation intensity is uniform, the temperature in the center is high because heat escapes from the periphery.

HLH-55W/f25/L280 from a rated focal length of 25mm irradiates firebricks.

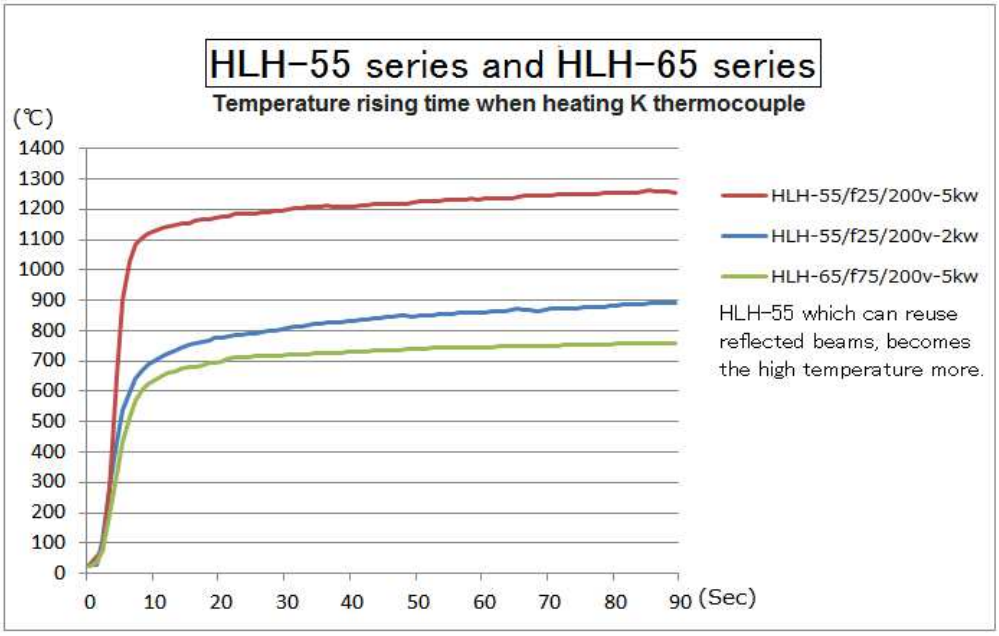
Thermal image taken with a thermography camera



From the thermal image, divide the 280 mm area of the condenser mirror of the halogen line heater into 10 areas, divide the maximum temperature of each divided area by the maximum temperature of the entire area, and quantify the temperature distribution of the heat-resistant bricks.

Since it is a rod-shaped lamp, the irradiation intensity is uniform, but the incident heat to the object to be heated is dissipated to the outside, and the temperature in the center, where heat dissipation is low, rises.

14-4. Heat-up time for HLH-55



【Please note】

In infrared heating, the heating temperature changes depending on the infrared absorption rate of the object.

When it is irradiated for a long time, it becomes high temperature.

14-5. Configuration of HLH-55

Model cermin kondensasi	Panjang cermin	Jarak fokus f	Metode pendinginan
HLH-55A/f25/L280/☐FAN	280mm	25mm	Tipe pendingin kipas
HLH-55A/f25/L600/☐FAN	600mm		
HLH-55A/f25/L☐/☐FAN			
HLH-55W/f25/L280	280mm	25mm	Tipe pendingin air
HLH-55W/f25/L600	600mm		
HLH-55W/f25/L1200	1200mm		
HLH-55W/f25/L1900	1900mm		
HLH-55W/f25/L☐	Panjang yang ditentukan		

Model lampu	Panjang cermin	Tegangan-Daya	Merancang hidup
HLH-55/L280/200V-2kW	280mm	200V-2kW	5000h
HLH-55/L280/200V-3kW	280mm	200V-3kW	1000h
HLH-55/L280/200V-5kW	280mm	200V-5kW	1000h
HLH-55/L☐/☐V-☐kW	Panjang yang ditentukan	Daya yang ditentukan	

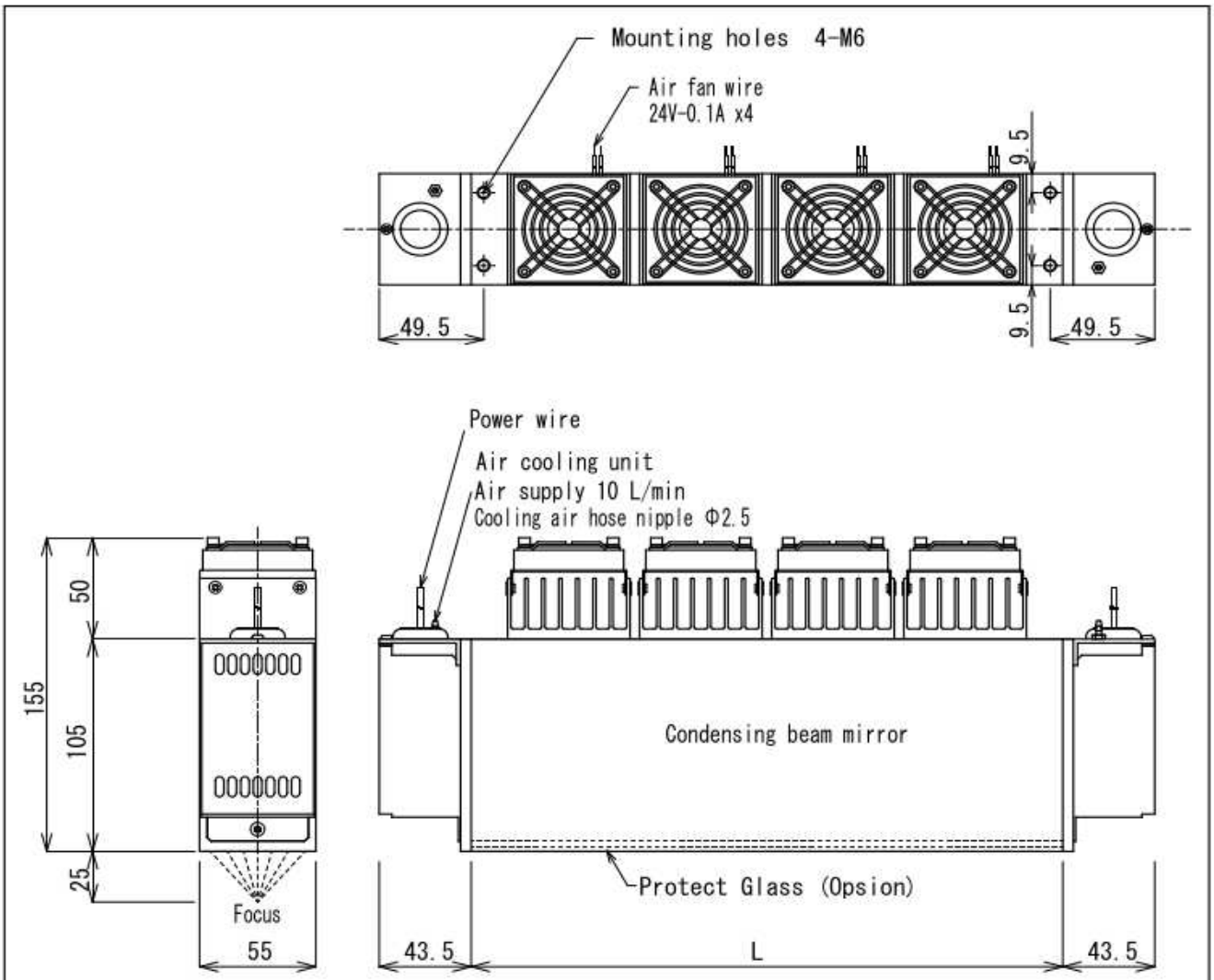
Model opsi	Barang
/P☐	Menentukan panjang saluran listrik
HLH-55/L☐/GW	Kaca pelindung (kaca tahan panas) ☐ = Panjang yang ditentukan
HLH-55/L☐/QW	Kaca pelindung (kaca kuarsa) ☐ = Panjang yang ditentukan
（+v）	Lampu vertikal
GP	Pelapisan emas dari cermin kolektor

Tentukan item berikut dan lakukan pemesanan.

Metode pendinginan, panjang cermin kondensor, Tegangan-Daya, panjang saluran listrik

Contoh penunjukan model　　HLH-55A/f25/L280/200V-2kW/DCFANP3m

14-6. Outline drawing of HLH-55



【 Note 】

① Please do not give vibration, tungsten filament of high fever is fragile.
② Please install the parallelism within ±3.
③ Please use Vertical Lamp when installed in the parallelism over ±3, and used vertically.
④ Mounting holes will vary depending on length mirror.
⑤ Air cooling effect is reduced in the location of the high temperature,
at such time please use the HLH-55W Water-cooled type.
⑥ Width of the focusing beam is the same as the thinness coil diameter of the tungsten filament.

【 Specification at the time of ordering 】

□V-□W Specifying voltage and wattage]

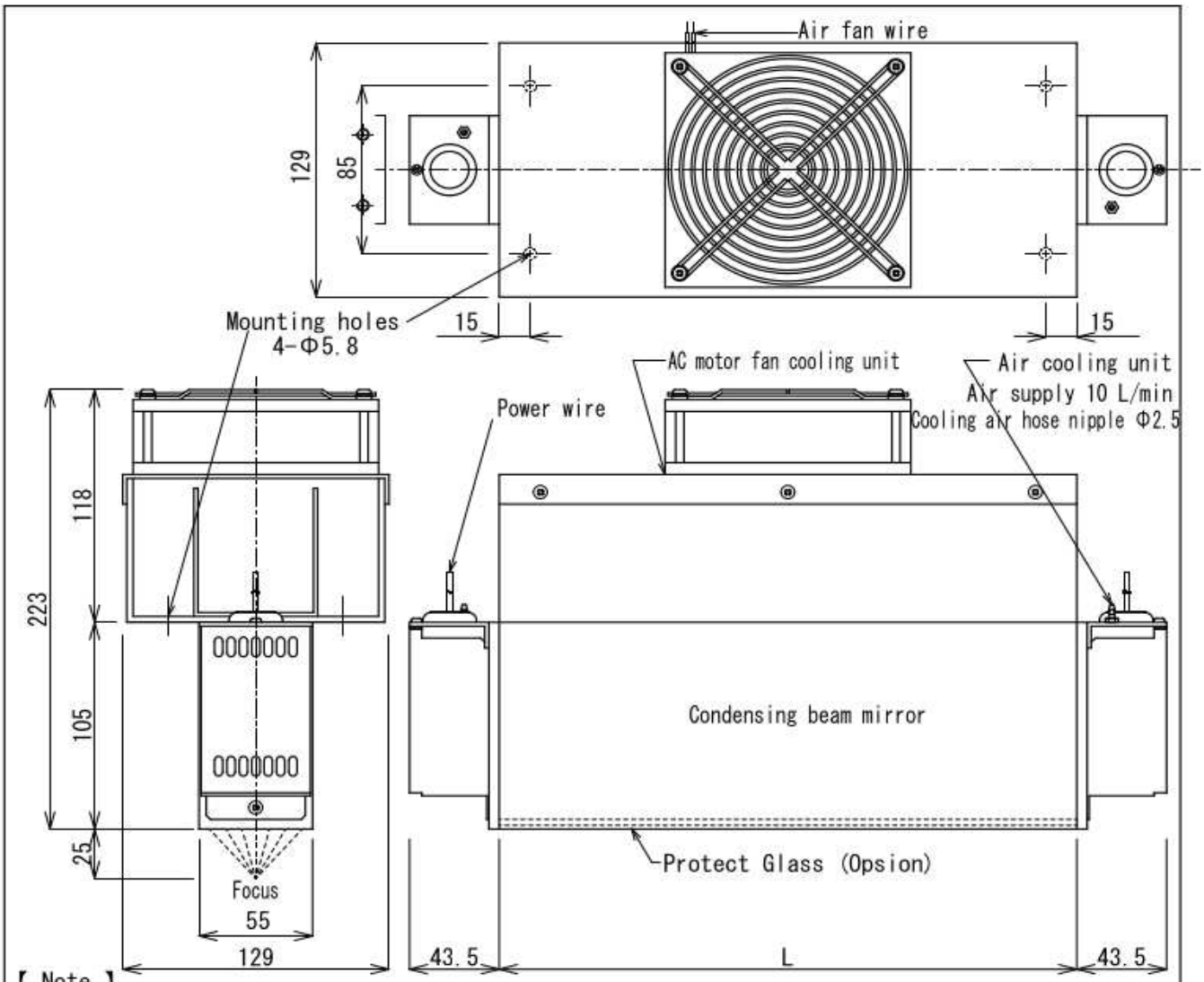
【 Option & Special order 】

/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard	Special Order		
Focus f	f25			
Mirror Length L	280mm	280～2500mm		
Voltage	200V	200V	400V	600V
Power	2kW	2kw～6kw	8kW	12kW
D/#	HLH-55A/f25/L□/□V-□W/DCFAN/Options			
Model	Air cooling condensing beam type Halogen Line Heater			

Date	Drawing number
2023.03.30	HLH-E10

Heat-tech



【 Note 】

① Please do not give vibration, tungsten filament of high fever is fragile.
② Please install the parallelism within ±3.
③ Please use Vertical Lamp when installed in the parallelism over ±3, and used vertically.
④ Mounting holes will vary depending on length mirror.
⑤ Air cooling effect is reduced in the location of the high temperature,
at such time please use the HLH-55W Water-cooled type.
⑥ Width of the focusing beam is the same as the thinness coil diameter of the tungsten filament.

【 Specification at the time of ordering 】

□V-□W Specifying voltage and wattage]

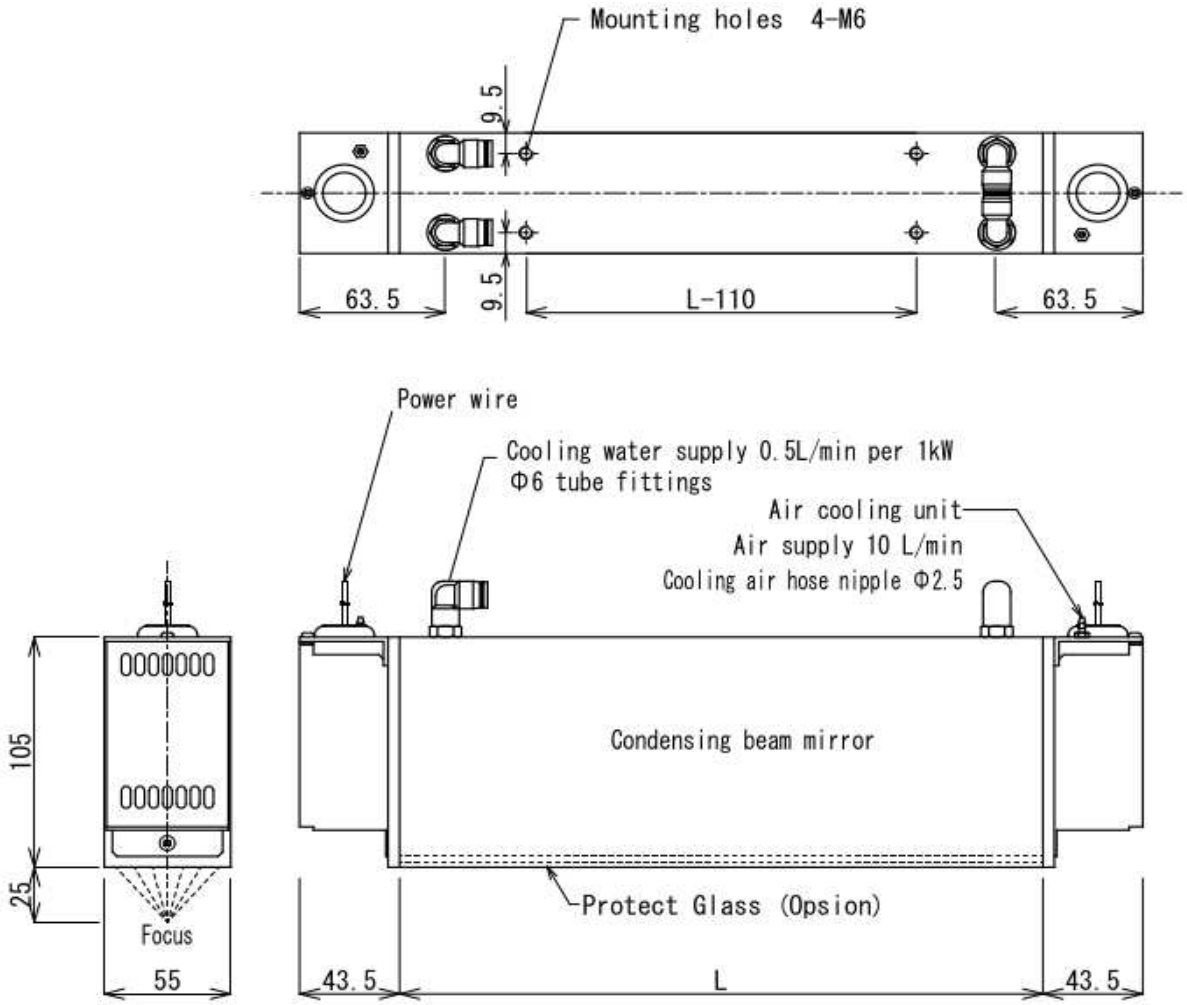
【 Option & Special order 】

/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard	Special Order		
Focus f	f25			
Mirror Length L	280mm	280～2500mm		
Voltage	200V	200V	400V	600V
Power	2kW	2kw～6kw	8kW	12kW
D/#	HLH-55A/f25/L□/□V-□W/ACFAN/			
Model	Air cooling condensing beam type Halogen Line Heater			

Date	Drawing number
2023.03.30	HLH-E11

Heat-tech



【 Specification at the time of ordering 】
□V-□W Specifying voltage and wattage]

【 Option & Special order 】
/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard			Special Order		
Focus f	f25					
Mirror Length L	280mm			280～2500mm		
Voltage	200V			200V	400V	600V
Power	2kW	3kW	5kW	2kw～6kw	12kW	16kW
D/#	HLH-55W/f25/L□/□V-□W/					
Model	Air cooling condensing beam type Halogen Line Heater					

Date	Drawing number	
2023.03.30	HLH-E12	Heat-tech

15 High power HLH-60 series for plane heating

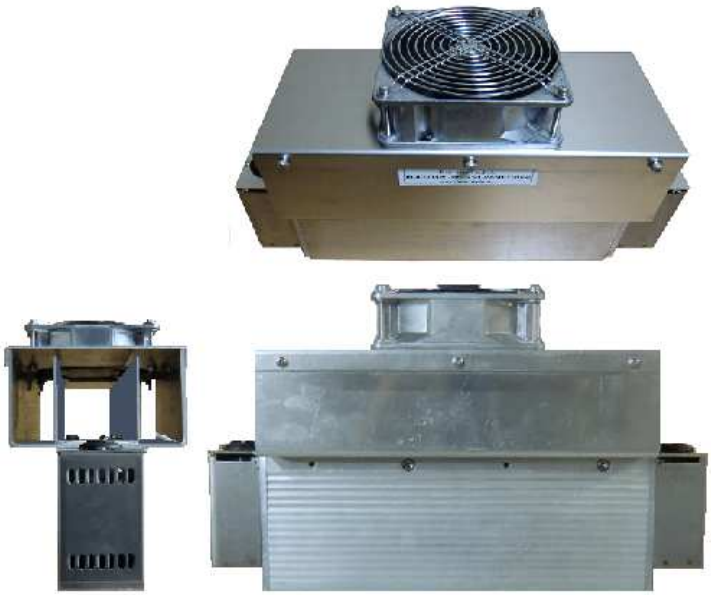
15-1.Features of HLH-60

1) Ini kecil dan dapat memanaskan secara linier hingga 850 ℃.
Pemanas garis halogen berkemampuan tinggi HLH-60 adalah unit pemanasan cahaya berbentuk pita yang menggunakan lampu halogen batang.
Heat-up time for yang singkat dan memiliki lebar cermin paralel sebesar 60mm, serta cahaya paralel (fokus tak terhingga), sehingga mampu melakukan pemanasan dalam bentuk pita.
Sebelumnya, cermin paralel tipe cahaya berbentuk parabola memiliki kedalaman cermin yang dangkal dan banyak cahaya yang bocor ke sekitarnya, menjadi sumber masalah.
Elain itu, proporsi kontrol cahaya yang dapat dikendalikan oleh cermin paralel juga rendah, sehingga efisiensi rendah juga menjadi kendala.
Namun, HLH-60 ini dilengkapi dengan permukaan refleksi yang dalam untuk mengumpulkan cahaya, secara bersamaan mengurangi kebocoran cahaya dan meningkatkan efisiensi penggunaan cahaya.
Pemanas ini juga dapat digunakan untuk pemanasan dalam bentuk panjang, dengan panjang efektif cermin paralel dapat dibuat dari 100mm hingga 3000mm.
Jika digunakan untuk pemanasan permukaan, lebih tepat menggunakan beberapa unit "HLH-35W/f∞" yang ditempatkan berdampingan.

2)Pemanas ini dapat memberikan pemanasan yang bersih dan sempurna,
dan juga dapat digunakan di ruang bersih atau dalam kondisi hampa udara.
Tipe yang menggunakan pendinginan air dapat digunakan di dalam wadah hampa udara.
Ketika ditempatkan di dalam ruang hampa udara, perlu dilakukan pengolahan vakum sebelumnya karena terdapat pelepasan gas kecil dari perekat anorganik pada awalnya.

15-2. External view of HLH-60

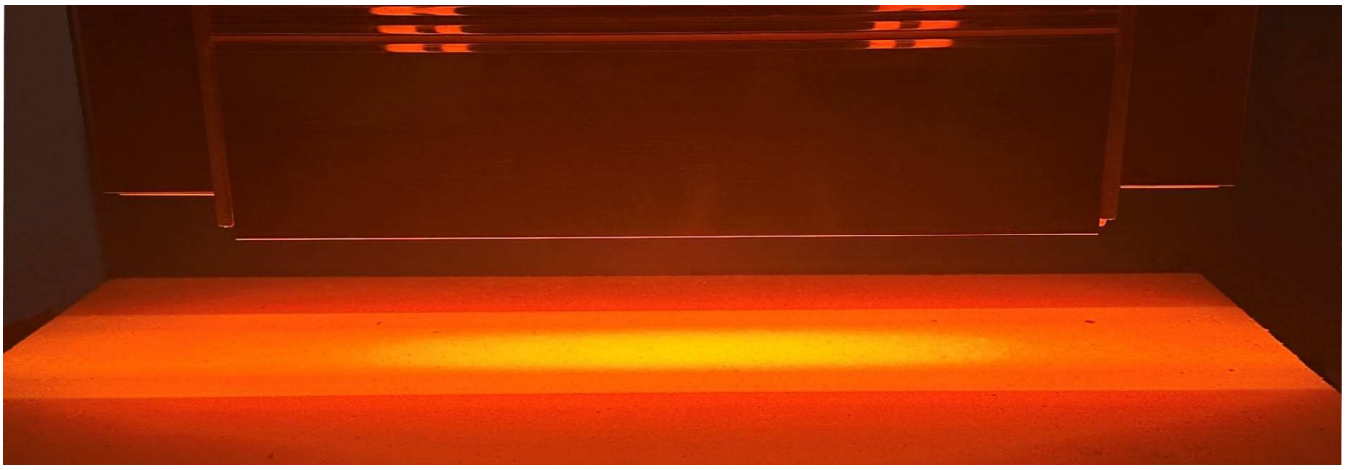
《HLH-60A/f∞/ L 280　DCFAN》



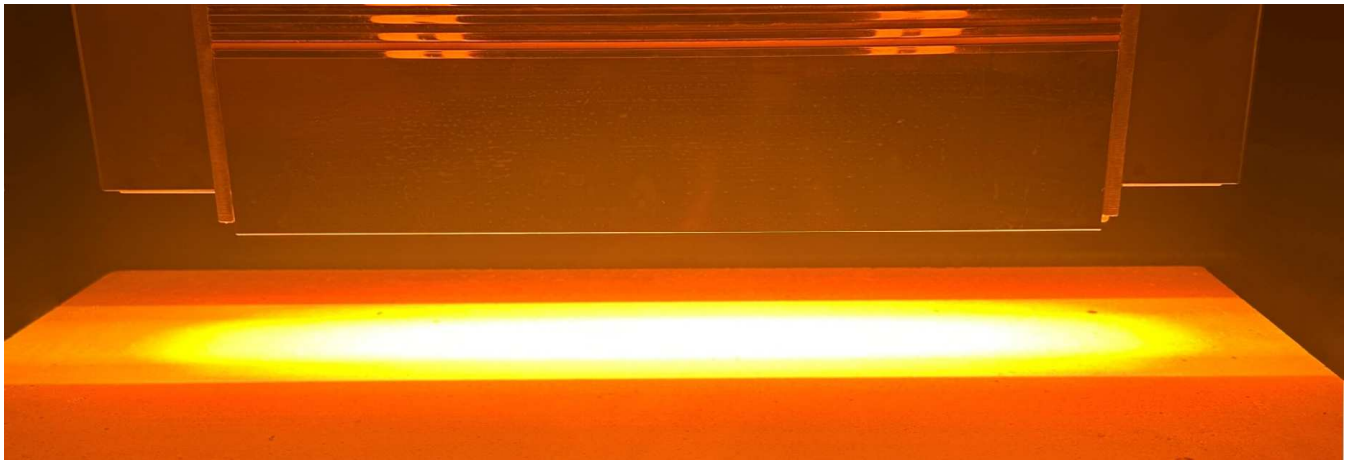
《HLH-60A/f∞/ L 280　ACFAN》

《HLH-60W/f∞/280》

15-3. Focal length and focal width of HLH-60



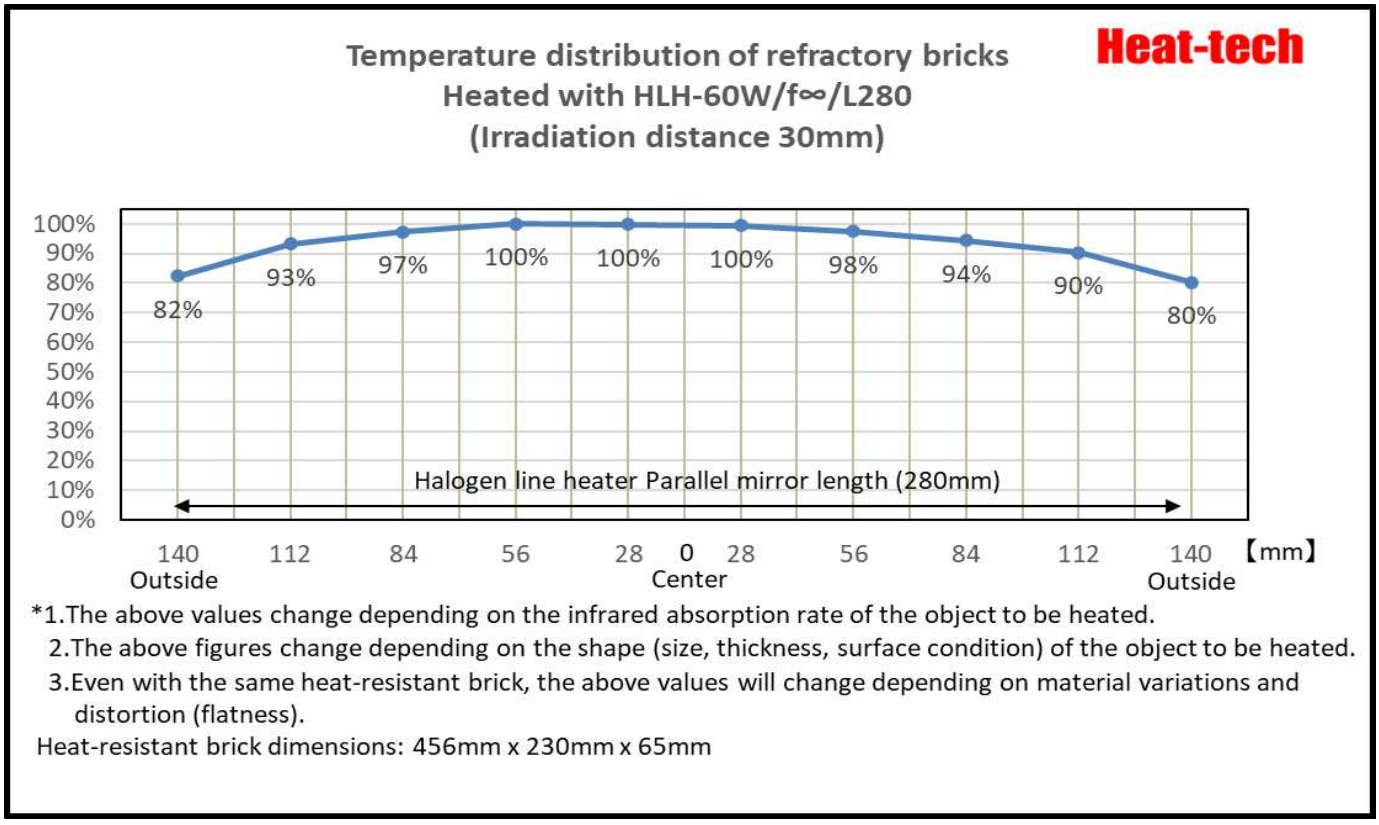
《HLH-60A/f∞/L280/200V-2kW 25V masukan》



《HLH-60A/f∞/L280/200V-2kW 200V masukan》

Cermin paralel digunakan, sehingga arah lebarnya hampir seragam.
Kisaran 70 mm dari permukaan ujung kiri dan kanan memiliki kemiringan, dan bagian tengah 140 mm dipanaskan secara merata.
Karena merupakan lampu berbentuk batang, intensitas penyinarannya seragam.
Kisaran pemanasan + muka ujung kanan 70mm + panjang reflektor muka ujung kiri 70mm diperlukan.
(Contoh) Saat rentang pemanasan adalah 200 mm
Panjang reflektor rentang pemanasan 200mm+muka ujung kanan 70mm+muka ujung kiri 70mm=340mm.
Ketika keseragaman seluruh permukaan penting, metode pemanasan permukaan dengan mengatur banyak HLH-35W/f∞ cocok.

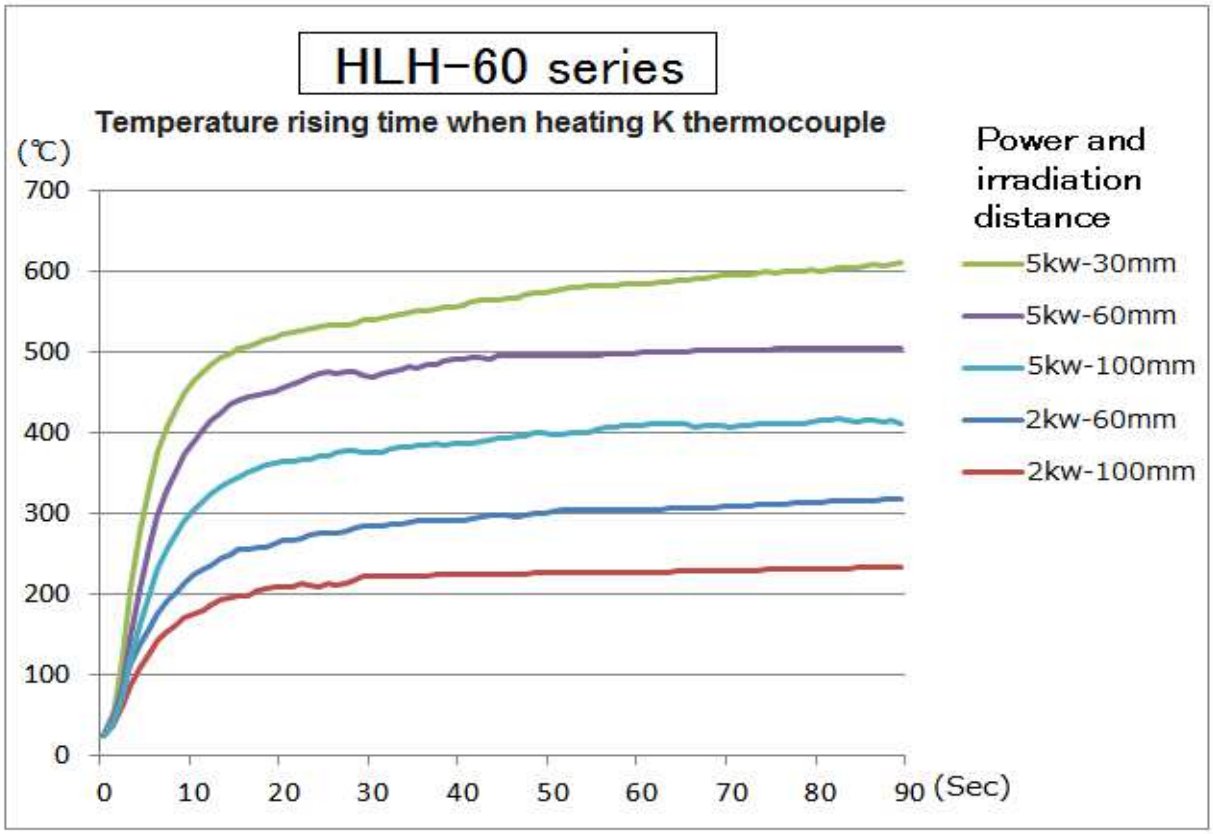
Thermal image taken with a thermography camera



From the thermal image, divide the 280 mm area of the condenser mirror of the halogen line heater into 10 areas, divide the maximum temperature of each divided area by the maximum temperature of the entire area, and quantify the temperature distribution of the heat-resistant bricks.

Since it is a rod-shaped lamp, the irradiation intensity is uniform, but the incident heat to the object to be heated is dissipated to the outside, and the temperature in the center, where heat dissipation is low, rises.

15-4. Heat-up time for HLH-60



【Please note】
In infrared heating, the heating temperature changes depending on the infrared absorption rate of the object.
When it is irradiated for a long time, it becomes high temperature.

15-5. Configuration of HLH-60

Parallel mirror D/#	Mirror length	Focus	Cooling type
HLH-60A/f∞/L280/□fan	280mm	f∞	Fan air cooling type
HLH-60A/f∞/L600/□fan	600mm	f∞	
HLH-60A/f∞/L□/□fan	Specified	f∞	
HLH-60W/f∞/L280	280mm	f∞	Water cooling built-in
HLH-60W/f∞/L600	600mm	f∞	
HLH-60W/f∞/L1200	1200mm	f∞	
HLH-60W/f∞/L1900	1900mm	f∞	
HLH-60W/f∞/L□	Specified	f∞	

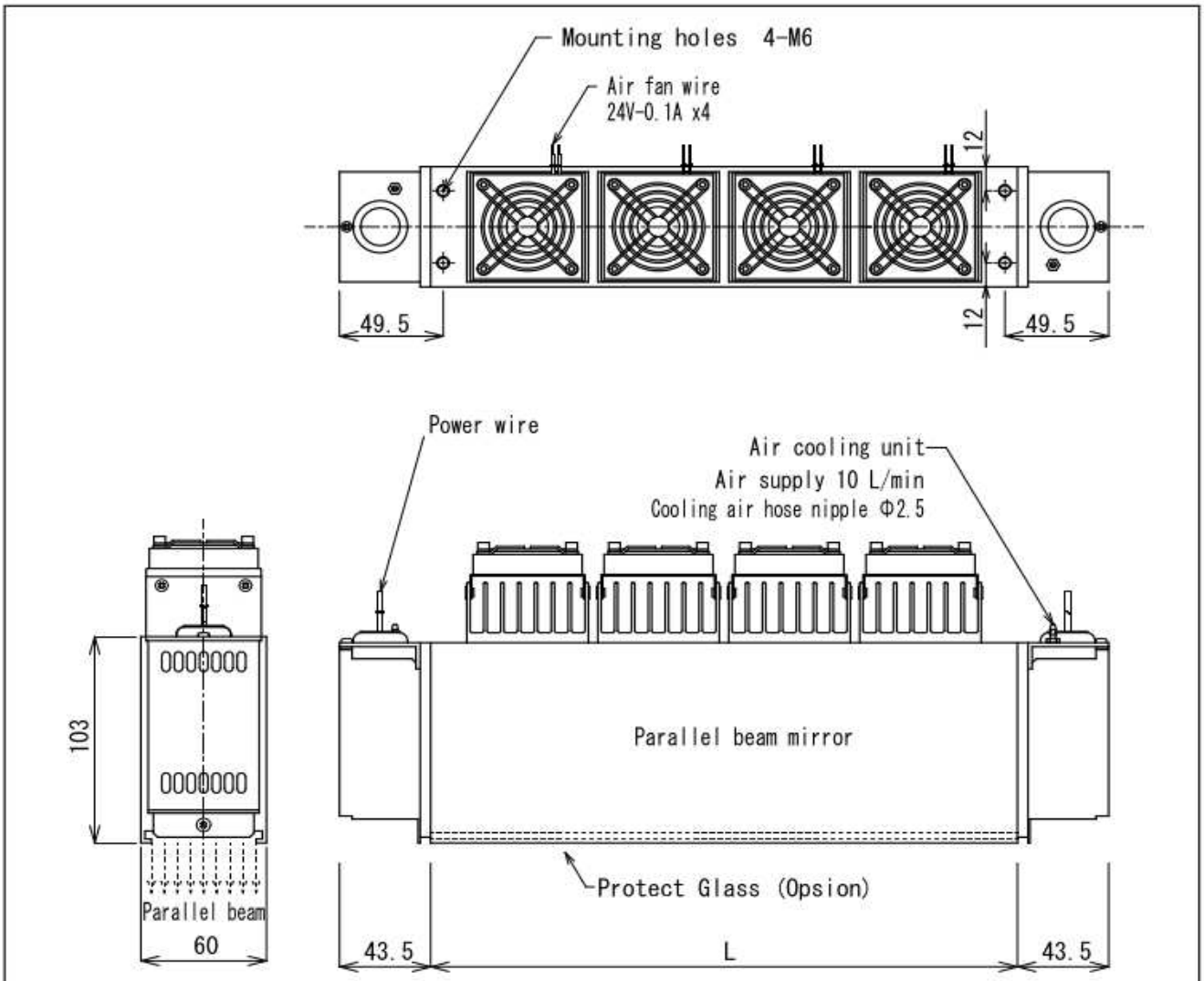
Lamp D/#	Mirror length	Volt-Power	Design life
HLH-60/L280/200v-2kw	280mm	200v-2kw	5000h
HLH-60/L280/200v-3kw	280mm	200v-3kw	1000h
HLH-60/L280/200v-5kw	280mm	200v-5kw	1000h
HLH-60/L□/□v-□kw	Specified	Specified	

Options	Items
HLH-60/L□/GW	Protect heat-resistant glass □=Specified length
HLH-60/L□/QW	Protect quartz glass □=Specified length
P□	Power wire □=Specified length
(+V)	Vertical lamp (For arm robot)
GP	Gold plated parallel beam mirror

HLH-60 will order with the following items specified.
Cooling type, length of parallel beam mirror, voltage of halogen lamp, output of halogen lamp, fan type, length of power supply wire,

Model specified example
Fan air cooling type HLH-60A/f∞/L280/200v-2kw/DCfan/P3m

15-6. Outline drawing of HLH-60



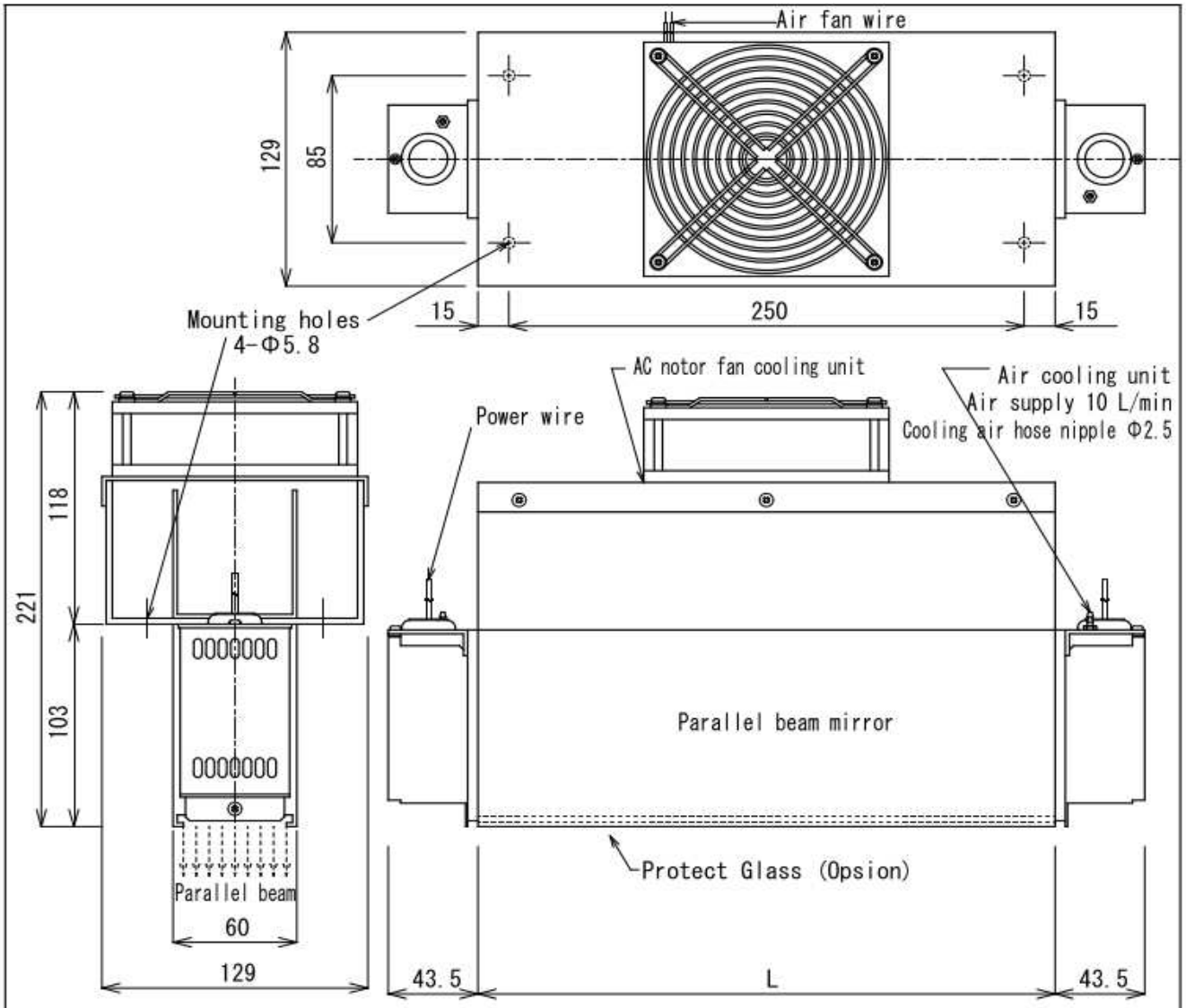
【 Specification at the time of ordering 】
□V-□W Specifying voltage and wattage]

【 Option & Special order 】
/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard	Special Order		
Focus f	f∞ (	)		
Mirror Length L	280mm	280～2500mm		
Voltage	200V	200V	400V	600V
Power	2kW	2kw～6kw	8kW	12kW
D/#	HLH-60A/f∞/L□/□V-□W/DCFAN/			
Model	Air cooling parallel beam type Halogen Line Heater			

Date	Drawing number
2023.03.30	HLH-E13

Heat-tech



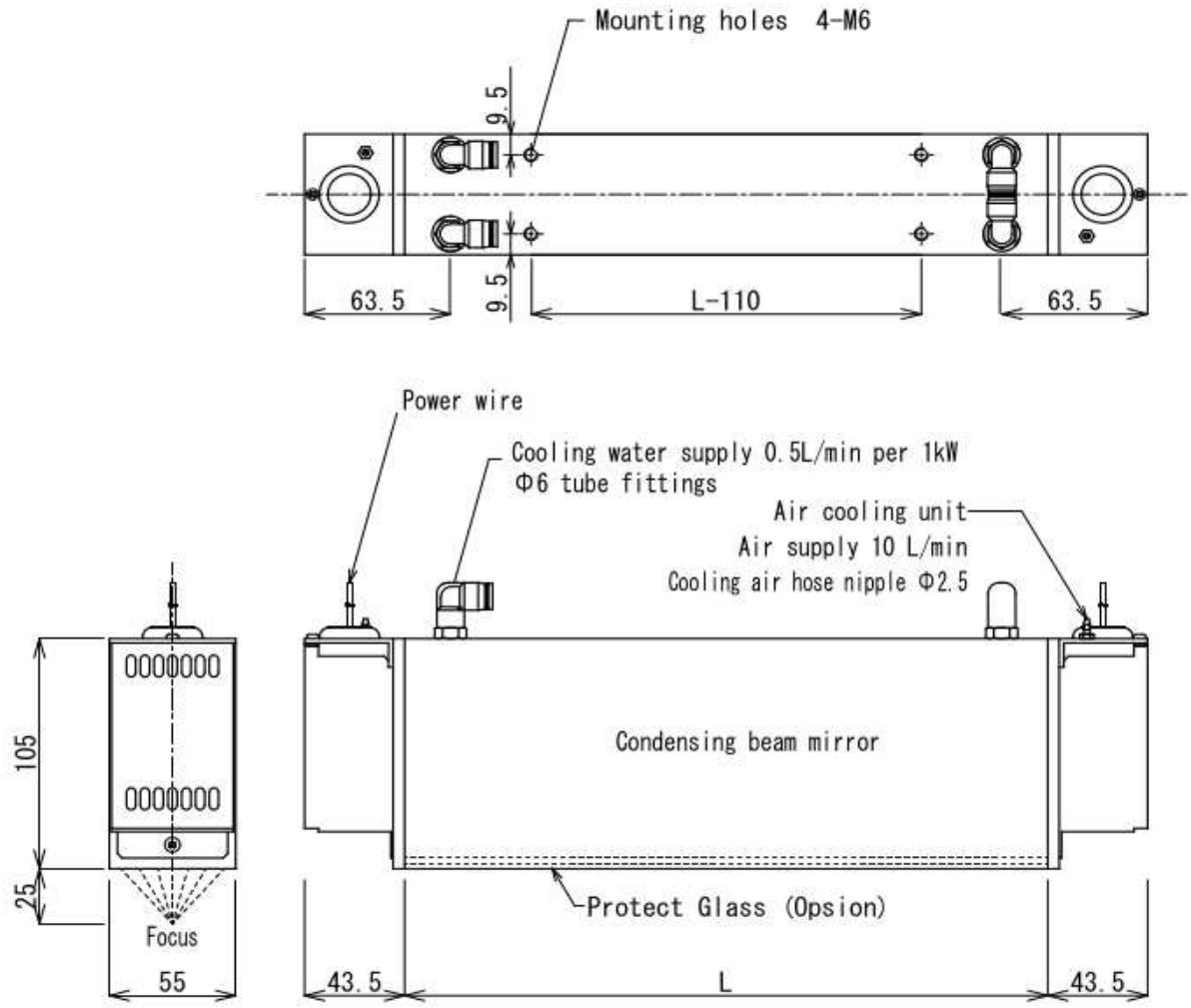
【 Specification at the time of ordering 】
□V-□W Specifying voltage and wattage]

【 Option & Special order 】
/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard	Special Order		
Focus f	f∞ ( )			
Mirror Length L	280mm	280～2500mm		
Voltage	200V	200V	400V	600V
Power	2kW	2kw～6kw	8kW	12kW
D/#	HLH-60A/f∞/L□/□V-□W/ACFAN/			
Model	Air cooling parallel beam type Halogen Line Heater			

Date	Drawing number
2023.03.30	HLH-E14

Heat-tech



【 Specification at the time of ordering 】
□V-□W Specifying voltage and wattage]

【 Option & Special order 】
/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard			Special Order		
Focus f	f25					
Mirror Length L	280mm			280～2500mm		
Voltage	200V			200V	400V	600V
Power	2kW	3kW	5kW	2kw～6kw	12kW	16kW
D/#	HLH-55W/f25/L□/□V-□W/					
Model	Air cooling condensing beam type Halogen Line Heater					

Date	Drawing number
2023.03.30	HLH-E12

Heat-tech

16 High power HLH-65 series for line heating

16-1.Features of HLH-65

1) It can be heated linearly.
The high-performance line heater HLH-65 is a line condensing heating unit that uses a rod-shaped halogen lamp.
The product concept is "highest performance", and a maximum output of about 2 kW per 100 mm of collector mirror is possible.
In addition to linear heating, the line condensing type can heat the entire workpiece by placing it on a conveyor and irradiating it with a heater.
Also, by using it away from the focal position, you can heat with a wider range.

HLH-55 long focus model
The long focal length reduces the reuse of reflected light.
Select HLH-55 if higher temperatures are required.

2) Perfectly clean heating is achieved, and heating in clean rooms and vacuums is also possible.
The water-cooled type can be used in a vacuum vessel.
When placed in a vacuum cleaner, a small amount of gas is emitted from the inorganic adhesive at the beginning, so vacuum treatment is required in advance.

16-2. External view of HLH-65

《HLH-65A/f75/ L 280 DCFAN》

《HLH-65A/f75/ L 280　ACFAN》

《HLH-65W/f75/280》

16-3. Focal length and focal width of HLH-65

Relationship between focal length and focal width of halogen line heater (HLH-65/f75/200v-2kw)

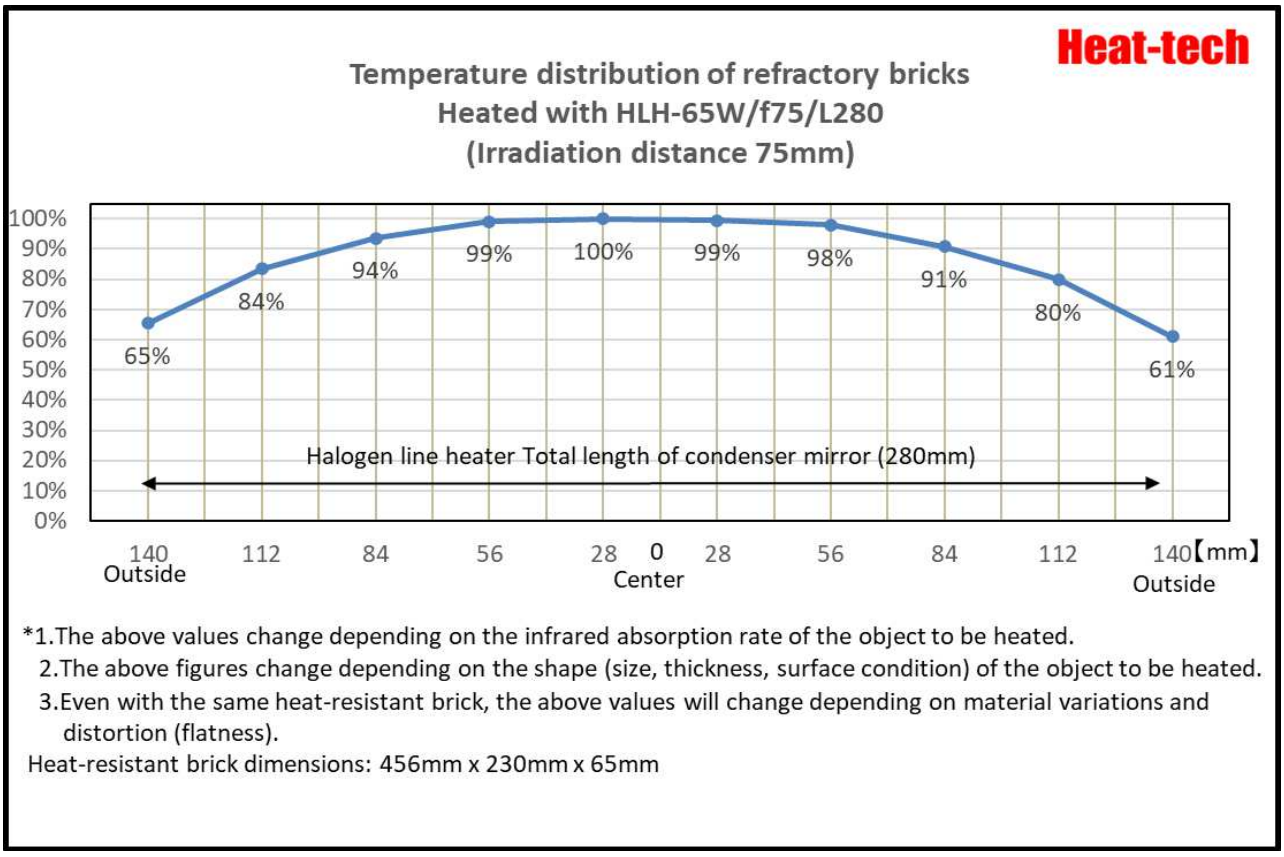
Fig.1	Fig.2	Fig.3	Fig.4
Dist. 40mm	Dist. 75mm	Dist. 115mm	Dist. 150mm
（Rated dist. -35mm）	（Rated dist.）	（Rated dist.+40mm）	（Rated dist.+75mm）

* The voltage is reduced to 100V for photography.

Heat-tech

Bata tahan api disinari dengan HLH-65W/f75/L280 dari jarak pengenal 75mm.

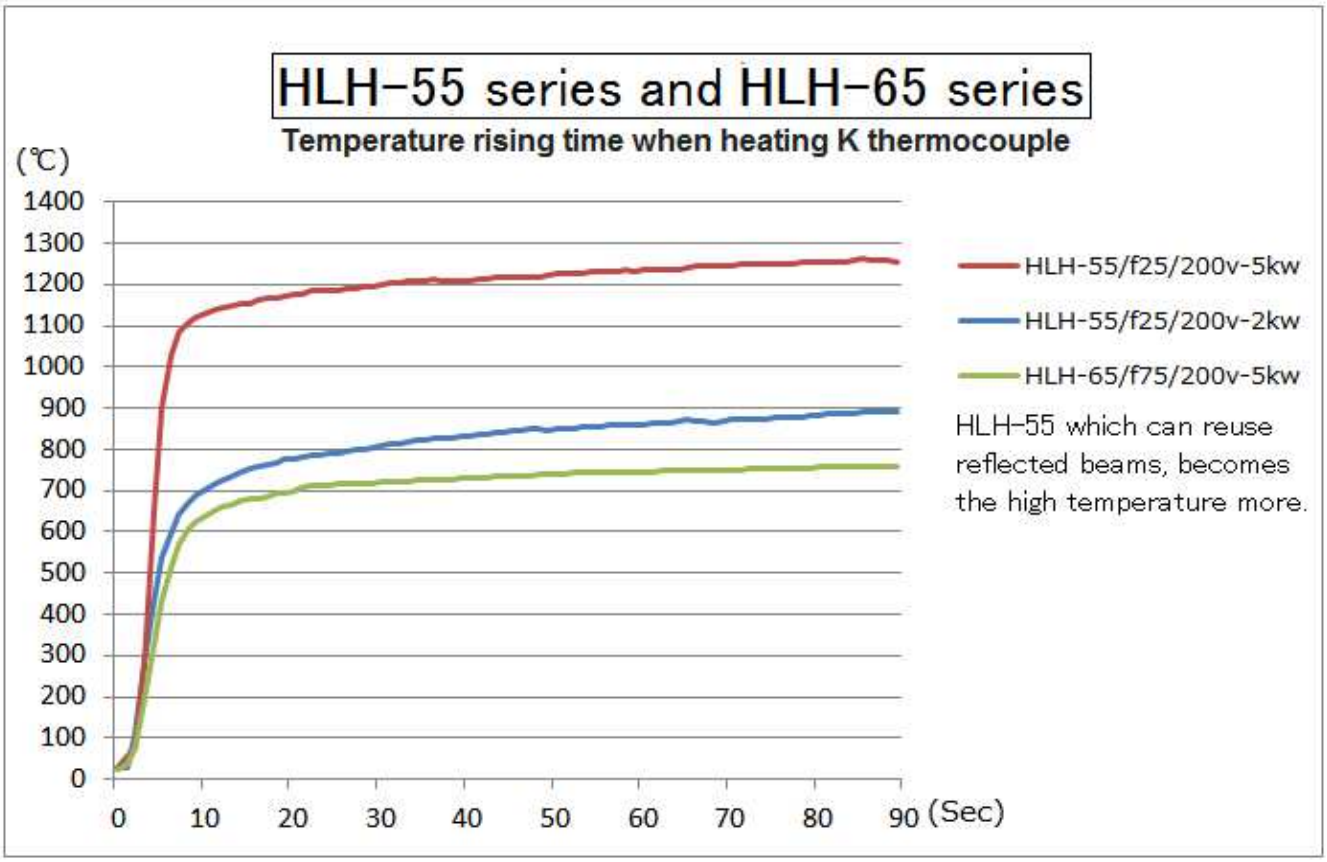
Thermal image taken with a thermography camera



From the thermal image, divide the 280 mm area of the condenser mirror of the halogen line heater into 10 areas, divide the maximum temperature of each divided area by the maximum temperature of the entire area, and quantify the temperature distribution of the heat-resistant bricks.

Since it is a rod-shaped lamp, the irradiation intensity is uniform, but the incident heat to the object to be heated is dissipated to the outside, and the temperature in the center, where heat dissipation is low, rises.

16-4. Heat-up time for HLH-65



【Please note】

In infrared heating, the heating temperature changes depending on the infrared absorption rate of the object.

When it is irradiated for a long time, it becomes high temperature.

16-5. Configuration of HLH-65

Condenser mirror D/#	Mirror length	Focus	Cooling type
HLH-65A/f75/L280/□fan	280mm	75mm	Fan air cooling type
HLH-65A/f75/L600/□fan	600mm	75mm	
HLH-65A/f75/L□/□fan	Specified	75mm	
HLH-65W/f75/L280	280mm	75mm	Water cooling built-in
HLH-65W/f75/L600	600mm	75mm	
HLH-65W/f75/L1200	1200mm	75mm	
HLH-65W/f75/L1900	1900mm	75mm	
HLH-65W/f75/L□	Specified	75mm	

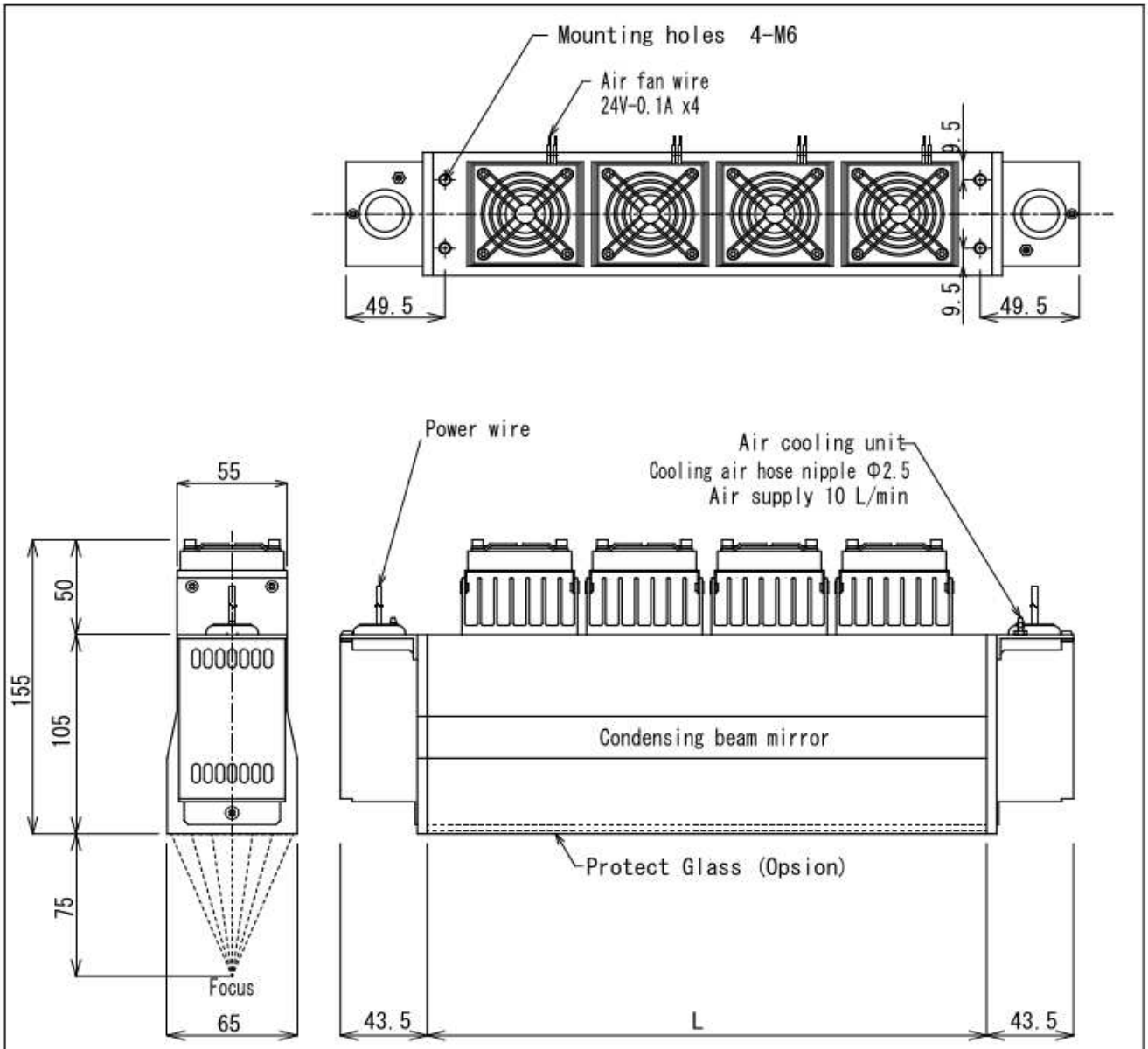
Lamp D/#	Mirror length	Volt-Power	Design life
HLH-65/L280/200v-2kw	280mm	200v-2kw	5000h
HLH-65/L280/200v-3kw	280mm	200v-3kw	1000h
HLH-65/L280/200v-5kw	280mm	200v-5kw	1000h
HLH-65/L□/□v-□kw	Specified	Specified	

Options	Items
HLH-65/L□/GW	Protect heat-resistant glass □=Specified length
HLH-65/L□/QW	Protect quartz glass □=Specified length
P□	Power wire □=Specified length
(+V)	Vertical lamp (For arm robot)
GP	Gold plated condenser mirror

HLH-65 will order with the following items specified.
Cooling type, length of condensing mirror, voltage of halogen lamp, output of halogen lamp, fan type, length of power supply wire,

Model specified example
Fan air cooling type HLH-65A/f75/L280/200v-2kw/DCfan/P3m

16-6. Outline drawing of HLH-65



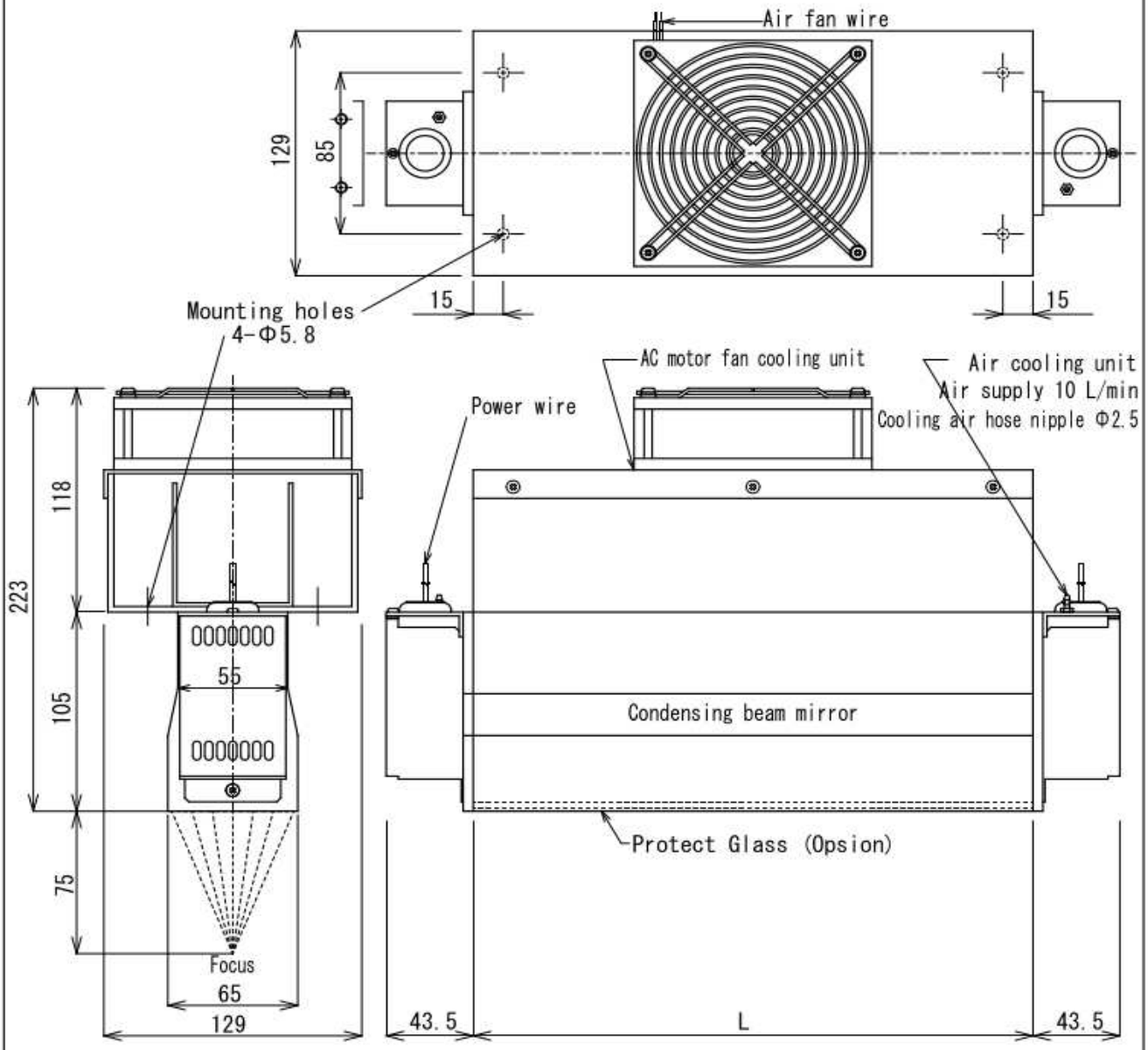
【 Specification at the time of ordering 】
□V-□W Specifying voltage and wattage]

【 Option & Special order 】
/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard	Special Order		
Focus f	f75			
Mirror Length L	280mm	280～2500mm		
Voltage	200V	200V	400V	600V
Power	2kW	2kw～6kw	8kW	12kW
D/#	HLH-65A/f75/L□/□V-□W/DCFAN/			
Model	Air cooling condensing beam type Halogen Line Heater			

Date	Drawing number
2023.03.30	HLH-E16

Heat-tech



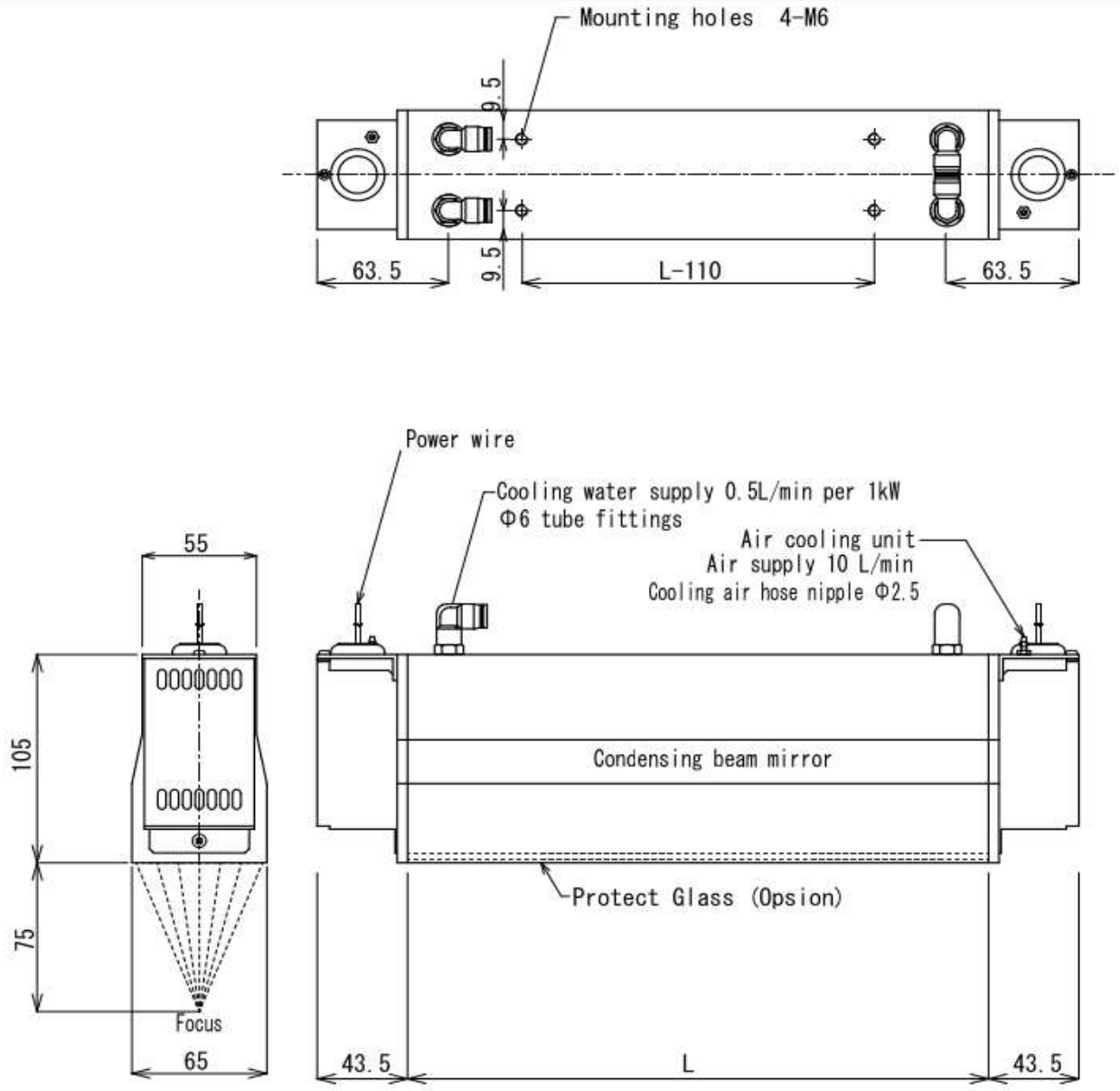
【 Specification at the time of ordering 】
□V-□W Specifying voltage and wattage]

【 Option & Special order 】
/P□m Specified power line
/GW Heat-resistant glas
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard	Special Order		
Focus f	f75			
Mirror Length L	280mm	280～2500mm		
Voltage	200V	200V	400V	600V
Power	2kW	2kw～6kw	8kW	12kW
D/#	HLH-65A/f75/L□/□V-□W/ACFAN/			
Model	Air cooling condensing beam type Halogen Line Heater			

Date	Drawing number
2023.03.30	HLH-E17

Heat-tech



【 Specification at the time of ordering 】
□V-□W Specifying voltage and wattage]

【 Option & Special order 】
/P□m Specified power line
/GW Heat-resistant glass
/NW Crystallized glas
/QW Quartz glass
/L□ Specified mirror length
/+V Specified Vertical Lamp
/+GP Specified Gold Plate

Type	Standard			Special Order		
Focus f	f75					
Mirror Length L	280mm			280～2500mm		
Voltage	200V			200V	400V	600V
Power	2kW	3kW	5kW	2kw～6kw	12kW	16kW
D/#	HLH-65W/f75/L□/□V-□W/					
Model	Water cooling condensing beam type Halogen Line Heater					

Date	Drawing number
2023.03.30	HLH-E18

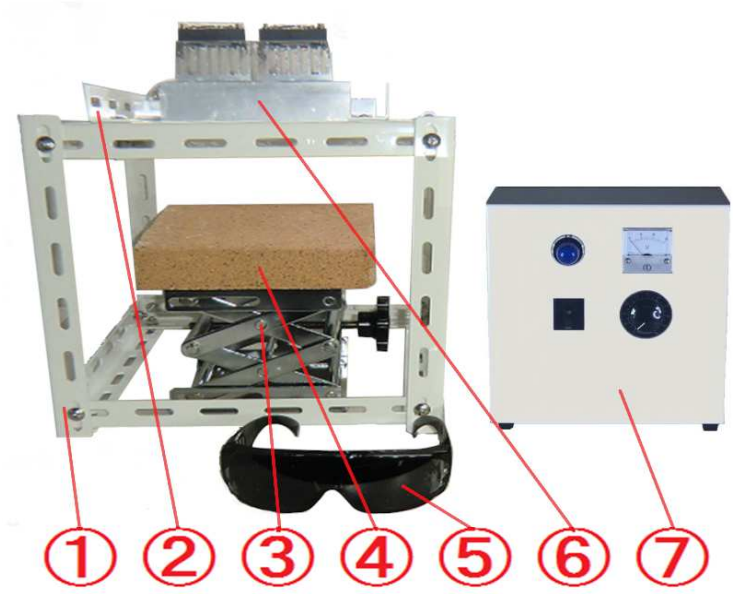
Heat-tech

Halogen Line Heater Laboratory-kit

LKHLH-35A/f∞/200 v -1kw +HCVD

◆ Feature ◆

1). Easily heating high temperatures by the kit !
2). Easily heating high temperatures at free range !
3). Easily adjusting the radiation area by manual lift!
4). Easily changing the heat power (wattage) by slide transformer !
5). It is so simple cooling system use cooling fan.



(Example of lab kit assembly.)
(※The lab kit is delivered as individual components.)

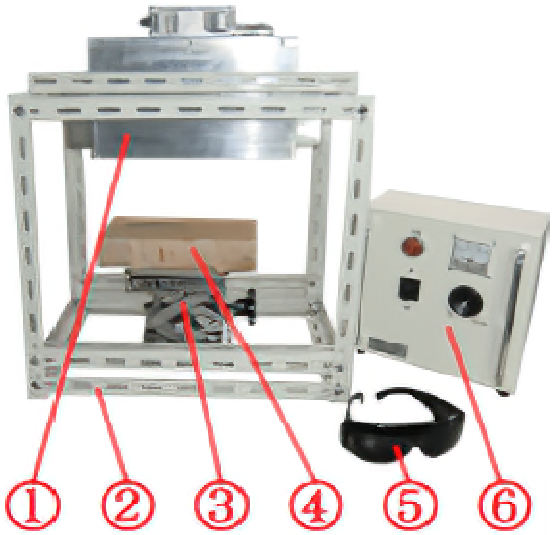
① Cubic test stand
② Heater mounting bracket
③ Manual lift.
④ Brick
⑤ Safety glasses against high intensity light
It can visually check the high-intensity irradiation point at maximum output.
⑥ Halogen Line Heater HLH-35A/f∞/100v-1000w
The output of 1kw, to heat the surface of the object.
⑦ By varying the AC200-240v to AC0 - 100v in volume,
User can adjust the heating output. Equipped with DC24V power for air cooling fan.

Halogen Line Heater Laboratory-kit

LKHLH-55A/f25/200v-2kw + HCV

◆ Feature ◆

1). Easily heating high temperatures by the kit !
2). Easily line heating high temperatures at free range !
3). Easily adjusting the radiation area by manual lift!
4). Easily changing the heat power (wattage) by slide transformer !
5). It is so simple cooling system use cooling fan.



(Example of lab kit assembly.)

(※The lab kit is delivered as individual components.)

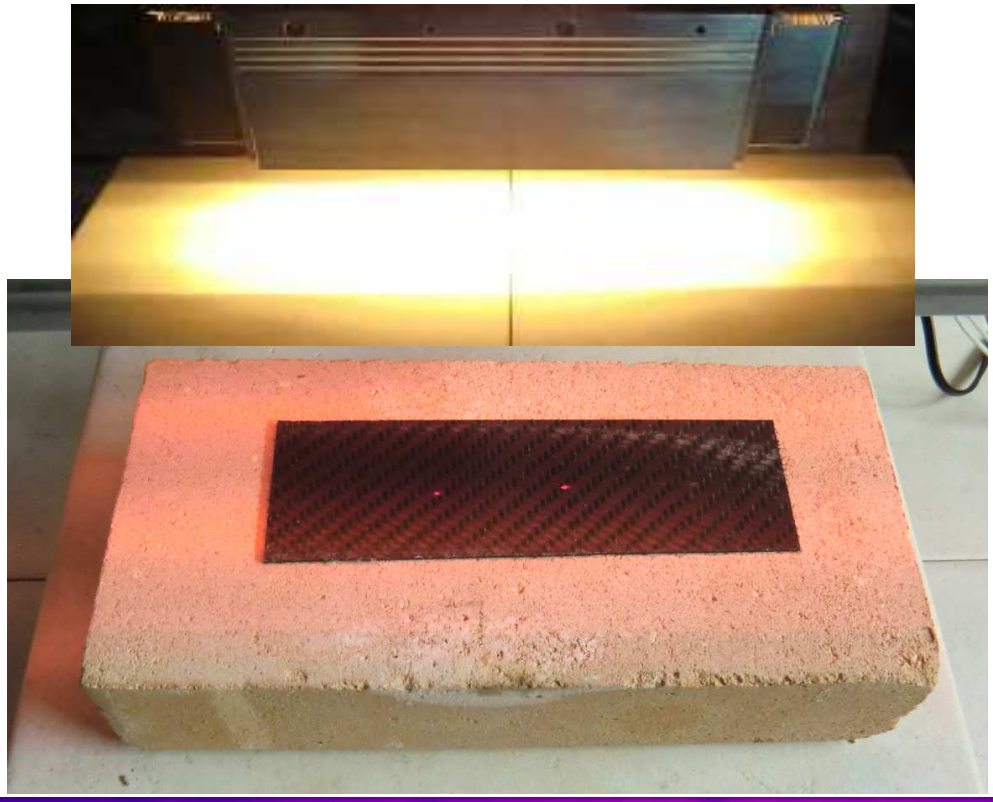
① Halogen Line Heater HLH-55A/f25/200v-2kw
The output of 2kw, to line heat the surface of the object.
② Cubic test stand
③ Manual lift.
④ Brick, This is useful when heating the test piece.
⑤ Safety glasses against high intensity light
It can visually check the high-intensity irradiation point at maximum output.
⑥ Manual variable power supply HCV-AC200-240V/-AC200V-2KW
By varying AC0 - 200v in volume, user can adjust the heating output.

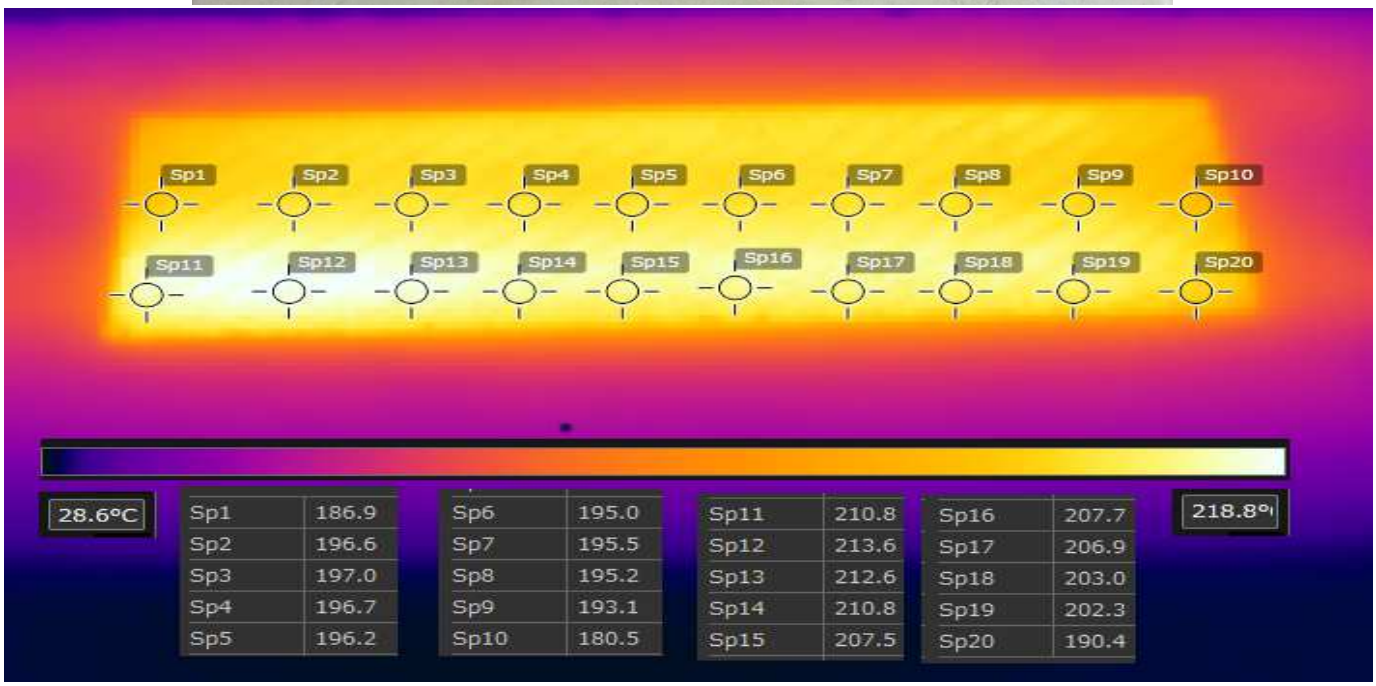
Halogen Line Heater Laboratory-kit

LKHLH-60A/f∞/200v-2kw +HCV

◆ Feature ◆

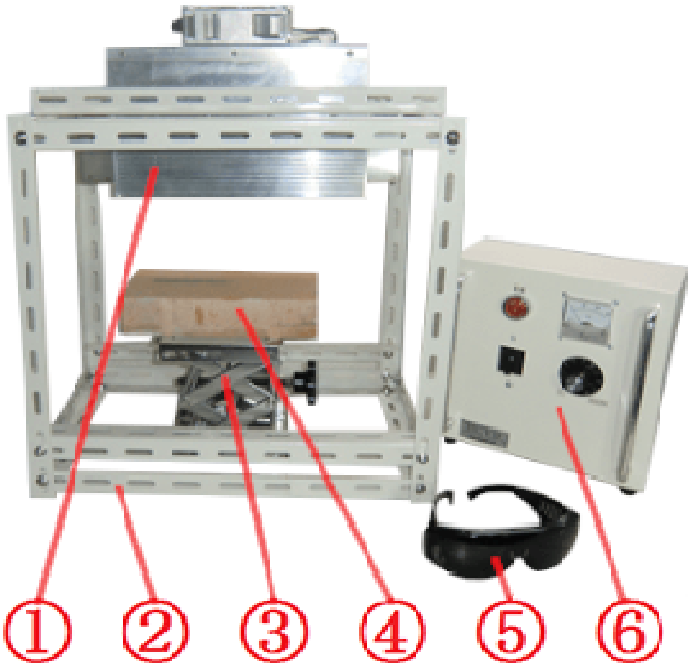
1). Easily heating high temperatures by the kit !
2). Easily plate heating high temperatures at free range !
3). Easily adjusting the radiation area by manual lift!
4). Easily changing the heat power (wattage) by slide transformer !
5). It is so simple cooling system use cooling fan.





【 Heating of carbon fiber sheet 】

Heating can be uniformly Because it is a parallel light type.



（Example of lab kit assembly.）

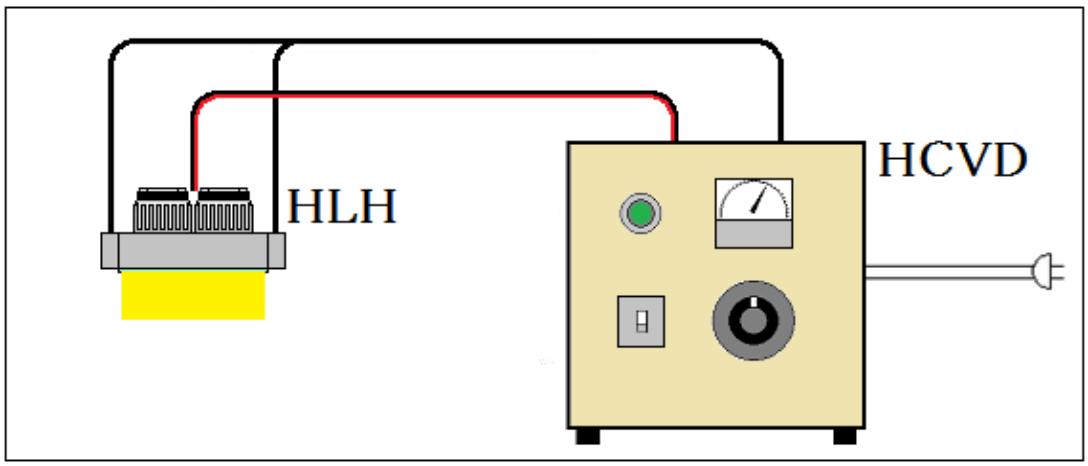
（ ※The lab kit is delivered as individual components. ）

① Halogen Line Heater　HLH-60A/f∞/200v-2kw
The output of 2kw, to line heat the surface of the object.
② Cubic test stand
③ Manual lift.
④ Brick, This is useful when heating the test piece.
⑤ Safety glasses against high intensity light
It can visually check the high-intensity irradiation point at maximum output.
⑥ Manual variable power supply HCV-AC200-240V/-AC200V-2KW
By varying AC0 - 200v in volume, user can adjust the heating output.

20 Manual power controller HCV

Color universal design type HCV-CUD / HCVD-CUD
A blue indicator light is used to create a color scheme that is easy for anyone to see.
Please specify additional CUD to the model of your order.

Standard type HCV
Equipped with a volume, user can manually voltage control of the halogen heater.



D/#	Power supply	Output Voltage-Current	Power supply for cooling fan
HCV-AC100-240V/DC6V-25A	AC100～240V	DC6V-25A	With-out
HCV-AC100-240V/DC12V-25A	AC100～240V	DC12V-25A	With-out
HCV-AC100-240V/DC24V-12.5A	AC100～240V	DC24V-12.5A	With-out
HCV-AC100-240V/DC36V-12.5A	AC100～240V	DC36V-12.5A	With-out
HCV-AC100-240V-25A	AC100～240V	AC100～240V-25A	With-out
HCV-AC100-240V-50A	AC100～240V	AC100～240V-50A	With-out
HCV-AC100-240V-75A	AC100～240V	AC100～240V-75A	With-out
HCV-AC220V/AC100V-25A	AC220V	AC100V-25A	With-out
HCV-AC220V/AC120V-25A	AC220V	AC120V-25A	With-out
HCVD-AC100-240V/DC12V-25A	AC100～240V	DC12V-25A	DC24V-0.5A
HCVD-AC100-240V/DC24V-12.5A	AC100～240V	DC24V-12.5A	DC24V-0.5A
HCVD-AC100-240V/DC36V-12.5A	AC100～240V	DC36V-12.5A	DC24V-0.5A
HCVD-AC100-240V-25A	AC100～240V	AC100～240V-25A	DC24V-0.5A
HCVD-AC100-240V-50A	AC100～240V	AC100～240V-50A	DC24V-0.5A
HCVD-AC100-240V-75A	AC100～240V	AC100～240V-75A	DC24V-0.5A

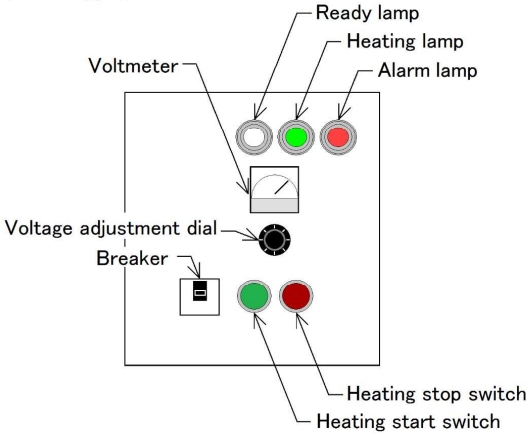
Additional Specifications

CUD	Color universal design type blue light.
FPR	Front Protection Rail
RPR	Rear Protection Rail
LH	Lifting Handle
Power Cable	Manufacture the specification of the power cable.

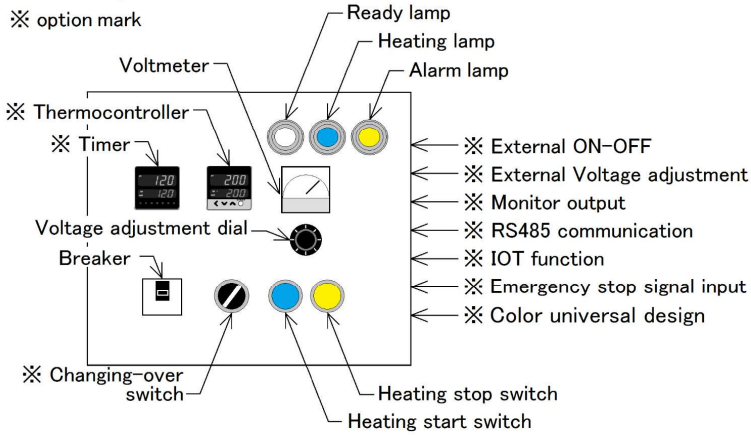
【Feature】

- HHC 2 is a heater controller that combines options with basic functions and is customized for use.
- Color universal design type can be specified CUD as an option.
  White, blue and yellow indicator lights, Blue and Yellow operation buttons.
  The color scheme is easy for anyone to see.
- “HHC2” has the ability to manually control the ON-OFF of the power, voltage.
  Current limit, slow-up, over-current breaker of voltage and so on,
  It incorporates enough safety equipment necessary to the halogen heater.
- Thermocontroller on-board of the option selected, there is a thermocouple specification or a radiation tl
- In option selected, user can control of ON-OFF and the voltage is possible with the outside signal.
- The IOT-function of the option selected, user can confirm data such as, the set temperature, heating te
- Using a duplication sensor of the optional selected, a over temperature alarm management is possible.
- Using a one-shot timer of the optional selected, an precision heating examination is possible.

【Basic type】



【Mounted options】



Model	Tegangan catu day	Tegangan	Arus listrik
HHC2-12v-300w	AC100-240v	DC12v	25A
HHC2-24v-330w	AC100-240v	DC24v	13A
HHC2-36v-600w	AC100-240v	DC36v	15A
HHC2-36v-1kw	AC100-240v	DC36v	28A
HHC2-120V-3kW	AC200-240v	AC120v	25A
HHC2-100v-240v-15A	AC100-240v	AC100-240v	15A
HHC2-100v-240v-30A	AC100-240v	AC100-240v	30A
HHC2-100v-240v-60A	AC100-240v	AC100-240v	60A

【Standard Function】

Power-supply voltage	AC100V～240V 50/60Hz
DC Control current	12v-300w / 24v-300w / 36v-500w / 36v-1kw
AC Control current	15A / 30A / 60A
Analog voltmeter	The output voltage of Halogen Heater is indicated by the analog meter.
Manual ON-OFF	Output ON-OFF by switch of the panel.
Manual adjustment	Adjustable voltage from 0 to 98% by 4-20mA signal from Remote.
AC power soft-start	At start-up, the inrush current is controlled by increasing the voltage slowly.
Overcurrent protect	The power semiconductor device is protected from the excessive current.
Burnout detect	With heater burnout detection and display. AC output type limited installed.
Usage environment	Temperature 0 ～ 45 ℃ Humidity 10% to 95% (non-condensing)
External dimensions	Width 300 x height 300 x depth 300 mm

Dukungan opsional

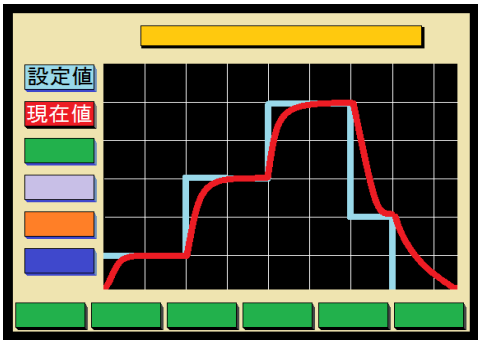
Model	Barang dan Deskripsi
CUD	Warna Desain universal lampu indikator putih biru kuning/tombol tekan kuning biru
TC	Pengontrol suhu input termokopel
TP	Pengontrol suhu input termometer radiasi
PM	Termometer radiasi dipasang di permukaan
SV	Fungsi pengawas memantau dan mengontrol panas berlebih.
HL	Kontrol Tinggi-Rendah Membuat naik lebih cepat.
TMR1	Timer yang dipasang di permukaan - pengaturan untuk pemanasan sekali pakai
TMR2	Timer yang dipasang di permukaan - mngatur waktu pemanasan
TMR3	Timer yang dipasang di permukaan - Heat-up time for kumulatif untuk pemeliharaan prediktif
RC1	Pemanasan mulai/berhenti dengan sinyal kontak eksternal.
RC2	Kontrol tegangan output dengan sinyal eksternal 4-20mA
RSP	Tentukan nilai pengaturan secara eksternal dengan 4-20mA.
MON	Menghasilkan nilai saat ini secara eksternal pada 4-20mA.
RS485	Komunikasi RS-485
IOT	Fungsi IOT
AirV	Katup on/off udara
OFDT	Katup penutup udara, pengatur waktu pendinginan 5 menit setelah Pemanasan berhenti
WP	Alarm tekanan air pendingin rendah
AP	Alarm tekanan udara pendingin terminal tidak memadai
DC24	Catu daya DC24V untuk kipas pendingin
CFS	Pemrosesan sinyal deteksi penghentian kipas pendingin
FPR	Rel pelindung depan
RPR	Rel pelindung belakang
Termometer radiasi	Kami akan mendapatkan dan menyesuaikan termometer radiasi untuk aplikasi yang anda inginkan
Kabel listrik	Kami akan memproduksi kabel daya yang ditentukan.

※ If user need a function other than the above, please contact us.

[Note] When the to add a function, there is that the external dimensions changes.

Condition setting, confirmation and recording,
the heater controller of 3 function 1 equipment.

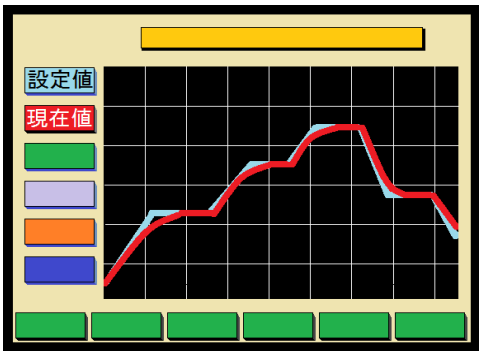
Stepset Controller
Profile-maker SSC series



◆Multistage setting function

A processing method such as a decline of the surface tension by the heating and extinction of the residual stress can be considered.

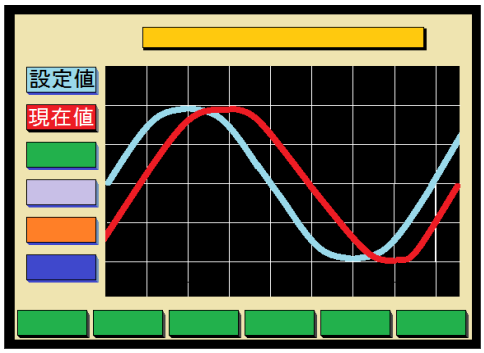
Setting the reservoir of intermediate polymerization reaction
Repeated heating and cooling method
Maintenance of solution processing temperature
Two-stage preheating quenching processing
Gas nitriding processing
Gas two-stage nitriding processing
Salt bath soft nitriding processing
Gas soft nitriding processing



◆Gradient setting function

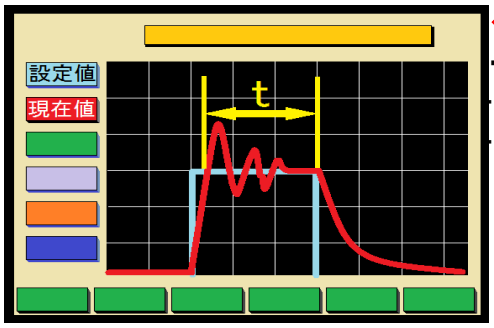
Important expansion and shrinkage rate, it is test for a precision material .

Trapezoidal control
Isothermal annealing
Management of recrystallization temperature
Slow heat → annealing → slow cooling process
Two-stage annealing
Age hardening treatment



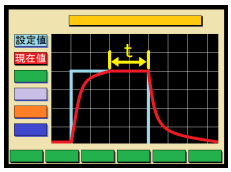
◆Sine curve setting function

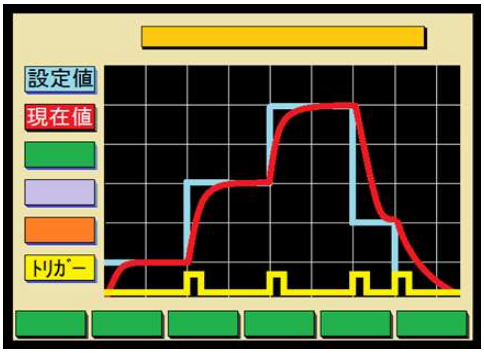
Heat cycle test of an electronic device.
Aging accelerated test of an electronic device.



◆One-Shot heating function

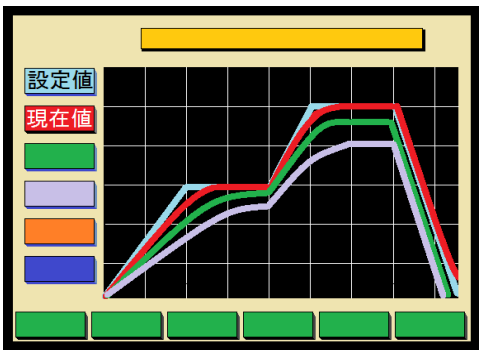
- The condition shortening of the tact time
- The tempering time management
- The normalizing time management





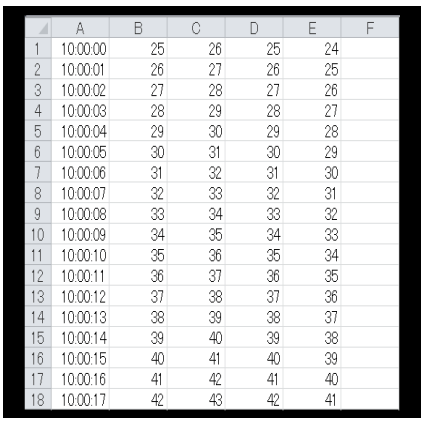
◆Trigger Shift function (optional)

When the trigger is input, and then move on to the next set temperature.



◆Multi-monitor function

Temperature distribution can know in real time.



	A	B	C	D	E	F
1	10:00:00	25	26	25	24	
2	10:00:01	26	27	26	25	
3	10:00:02	27	28	27	26	
4	10:00:03	28	29	28	27	
5	10:00:04	29	30	29	28	
6	10:00:05	30	31	30	29	
7	10:00:06	31	32	31	30	
8	10:00:07	32	33	32	31	
9	10:00:08	33	34	33	32	
10	10:00:09	34	35	34	33	
11	10:00:10	35	36	35	34	
12	10:00:11	36	37	36	35	
13	10:00:12	37	38	37	36	
14	10:00:13	38	39	38	37	
15	10:00:14	39	40	39	38	
16	10:00:15	40	41	40	39	
17	10:00:16	41	42	41	40	
18	10:00:17	42	43	42	41	

◆Memory card data folder function

Read the heating data from the memory card, and can edit the tables and graphs in EXCEL.

Heat-tech

Model List

Design Number	Input	Output	Power	Loop
SSC-DC12V-300W-1L	AC85-264v	DC3-12v	300w	1Loop
SSC-DC24V-300W-1L	AC85-264v	DC5-24v	300w	1Loop
SSC-DC24V-600W-2L	AC85-264v	DC5-24v	300w x2	2Loop
SSC-DC36V-600W-1L	AC85-264v	DC7-36v	600w	1Loop
SSC-DC36V-1200W-2L	AC85-264v	DC7-36v	600w x2	2Loop
SSC-AC15A-1L	AC100-110/200-220v		15A	1Loop
SSC-AC30A-1L	AC100-110/200-220v		30A	1Loop
SSC-AC30A-2L	AC100-110/200-220v		15Ax2	2Loop
SSC-AC45A-3L	AC100-110/200-220v		15Ax3	3Loop
SSC-AC60A-1L	AC100-110/200-220v		60A	1Loop
SSC-AC60A-2L	AC100-110/200-220v		30Ax2	2Loop
SSC-AC60A-4L	AC100-110/200-220v		15Ax4	4Loop
SSC-AC90A-3L	AC100-110/200-220v		30Ax3	3Loop
SSC-AC120A-2L	AC100-110/200-220v		60Ax2	2Loop
SSC-AC120A-4L	AC100-110/200-220v		30Ax4	4Loop

*1.Temperature input : J,T,E,R,B,N,S,w5Re,w26Re,JPt100,Pt100
*2.Analog input :±10V, ±5V, 0-10V, 0-5V, 1-5V, 0-20mA, 4-20mA
*3.In order to use the water-cooled type halogen heater, water cooling system is required.
*4.HLH of high output type requires a separate cooling air.
*5.Nameplate will be created in designated language as much as possible.

Standard Function

Memory card data	Read the heating data from the memory card, and can edit the tables and graphs in EXCEL.
Multi-monitor	Displays the total 8CH of temperature input 4CH and analog input 4CH the trend graph.
Multi-temperature	Multistage, Sign-curve and Gradient heating setting by a touch panel.
Supervisor	Multiple signal and several heaters coordination heating function.
One-shot heating	Heating time can be established by one shots from the preset temperature arrival value.
Temp. input 4CH	K,J,T,E,R,B,N,S,w5Re,w26Re,JPt100,Pt100 4CH
Analog input 4CH	±10V, ±5V, 0-10V, 0-5V, 1-5V, 0-20mA, 4-20mA 4CH

Optional Function

TA4	Temperature and analog multiple input 4CH
HL	High-Low Control for rapid-heating or preheating
TR	When the trigger is input, and then shift move on to the next set temperature.
RC1	Heating start or stop in the signal from outside
RC2	Specified output voltage in 4-20mA from outside
RSP	Specified thermocontroller temp. in 4-20mA
PVMON	Monitor, Output 4-20mA signal the temperature of the heating object.
SVMON	Monitor, Output 4-20mA signal the temperature of the set volume.
RS485	RS-485 Communication
IOT	IOT function
ACOUT	Power supply for AC Air cooling fan.
DC24	DC24V power supply cooling fan
AirV	Air opening and closing valve
OFDT	Air closing valve, heating stop after the cooling timer 5 minutes
BO	With heater burnout detection and display. With current limiter.
OVH	Over-heat Alarm. (For ABH/DGH□v-□w/□□/+2S type)
WP	Cooling water pressure shortage alarm
AP	Air Blow Heater and terminal cooling air pressure shortage alarm
CFS	Cooling fan stop detection signal processing
FPR	Front Protection Rail
RPR	Rear Protection Rail
Power Cable	Manufacture the specification of the power cable.
+α	If user need a function other than the above, please contact us.

* When the function is added, there is a possibility that change is external size.

General specification

Power supply	AC100-240v
Internal current consumption	1.6A(except the heater output)
Ambient temperature	0～50℃ (No freezing No condensation No dew)
Storage temperature	－10～+60℃ (No freezing No condensation No dew)
Use and storage humidity	35～85%RH (No freezing No condensation No dew)
Withstand voltage	AC1500V 1minute
Noise resistance	1500Vp-p Pulse width 1μs,50ns
Insulation resistance	DC500MV- 5MΩ over
Use atmosphere	No Dust, No terribly corrosive gas
Use altitude	2000m or less
External dimensions	Height 250mm width 400mm depth 270mm (Standard type)
Mass	About 5kg (Standard type)

Touch panel specification

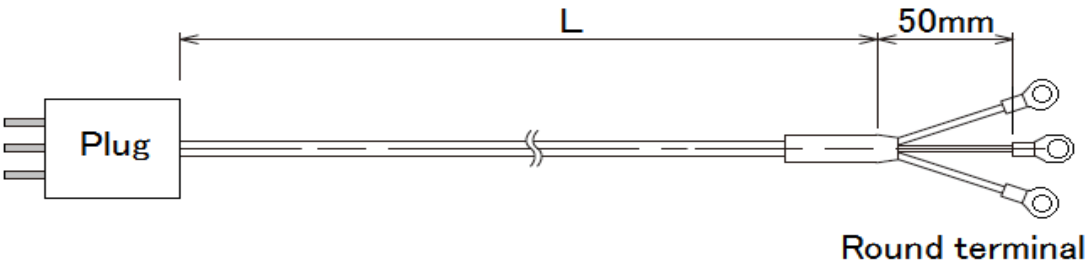
Display element	Ultra-high brightness TFT colour LCD
Display dots No.	VGA 640x480
LCD life	About 5000 hours (Normal temp. and humidity)
Backlight life	About 5400 hours
Touch switch life	1million times or more (touch switch actuating force 0.98NT below)

Memory card specification

Storage element	CF compact flash card EEPROM
File type	CSV
Memory capacity	128MB
Number of rewrites	100,000 or more times
Storage capacity	Maximum 128MB, 262144 files

23 Power Cable for Heater Controller

Manufacture the specification of the power cable.



Type A	Type B	Type C	Type D	Type E	Type F
					
Type G	**Type H**	**Type I**	**Type J**	**Type L**	
					

VOLT	NEMA	15 AMPERE Receptacle	15 AMPERE Plug	20 AMPERE Receptacle	20 AMPERE Plug	30 AMPERE Receptacle	30 AMPERE Plug
125 V	L1	 L1-15R	 L1-15P				
250 V	L2			 L2-20R	 L2-20P		
125 V	L5	 L5-15R	 L5-15P	 L5-20R	 L5-20P	 L5-30R	 L5-30P
250 V	L6	 L6-15R	 L6-15P	 L6-20R	 L6-20P	 L6-30R	 L6-30P
277V, A.C.	L7	 L7-15R	 L7-15P	 L7-20R	 L7-20P	 L7-30R	 L7-30P
480 V	L8			 L8-20R	 L8-20P	 L8-30R	 L8-30P
600 V	L9			 L9-20R	 L9-20P	L9-30R	L9-30P

When the plug or the connector which the upper figure does not have are necessary, we will manufacture as much as possible.

<< Quotation model specification method >>
(Heater controller model) - (Plug shape) - (Cable length)
<< Quotation example >>
HHC2-240v-30A-TypeA-5m

No-touch High Temperatures Heating

Heat-tech

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