

Band Heaters / Quartz Far Infrared Heaters

Band Heaters

RoHS10

MBHS One-Piece Single-Phase 200V

Material: Cover of the Heater: 430 Stainless Steel
Mica for Insulation: Synthetic Mica
Nickel-chrome Wire: Nickel Chrome Ribbon Wire

MBHS40 Only

Lead Wire 1000 (10)

MBHD Two-Piece Single-Phase 200V

Lead Wire: Nickel Copper Coated Wire
Lead Wire Heat Resistance Temperature: 180°C
Accessories: Insulation Glass (MBHS: 2 pcs. / MBHD: 4 pcs.)

Part Number	Type	No.	(d)	V (Voltage)	W (Electrical Power)	L	Electrical Power Density (W/cm ²)
MBHS	40	40		200	150	30	4.0
	50	50			200		
MBHD	100	100		200	250	50	2.0
	120	120			300		
	150	150			400		

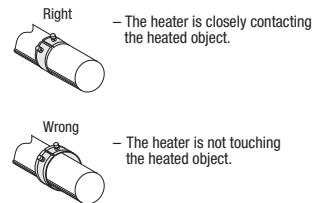
Features

- Band heater is a thin cylinder heater, coated with stainless steel plate, whose nickel-chrome wire is insulated with a heat-resistant mica board.
- One-piece type and two-piece type are available for different diameters of the heated object.
- One-piece Type: Suitable for the cylinder of small diameter. 1 unit (2 pcs.) of terminals are included.
- Two-piece Type: Suitable for the cylinders of relatively large diameter. 2 units (4 pcs.) of terminals are included.

Usage

- Band heater can be used for cylinder shaped heated objects (workpiece).
- Principal usages: Heating of hot nozzles, pipes and cylinder shaped metal plates

Application Example



Precautions for Use

- ⚠ Never operate heater when empty. May result in damage to the unit.
- ⚠ Apply electric power only when object is connected to the heater.
- ⚠ Attach object so that the heater comes into close contact with the surface to be heated. A gap will cause premature breakage of wire.
- ⚠ After installation, energize for several minutes, and tighten once more after being heated. In doing so, be sure to avoid burn injury.
- ⚠ Heater is not waterproof. Never expose the heater to water or any other liquids.
- ⚠ Do not use over the rated voltage (V).
- ⚠ Use the temperature controller for safety.
- ⚠ Do not mount One-piece Type flat. (Put the heated object through the heater.)

Part Number Example

Part Number: **MBHS40**

Quartz Far Infrared Heaters

RoHS10

MPHHS Quartz Far Infrared Heater + Reflection Mirror + Mounting Holder 2 pcs. - Single-Phase 100V/200V

MPHH Quartz Far Infrared Heater - Single-Phase 100V/200V

Quartz Far Infrared Heaters

Reflection Mirror

Mounting Holder

Quartz Far Infrared Heaters

Materials: Quartz Tube: Quartz Glass
Heater Cap: Brass + Nickel Plating
Terminal: 303 Stainless Steel Equivalent

Reflection Mirror

Materials: Reflection Mirror: 1050 Aluminum Alloy
Side Plate: 1050 Aluminum Alloy
Holder Mounting Metal
Fitting: 1018 Carbon Steel + Ni Chrome Plating

⚠ Maximum Operating Temperature: 150°C

The customer should assemble the MPHHS (set), which is a set of quartz far infrared heater, reflection mirror and mounting holder.

How to Mount

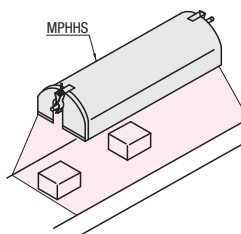
- (1) Fix the "mounting holder" to the "mounting metal" installed on the reflection mirror.
- (2) Fix the reflection mirror and mounting holder to the designated place by using M5 screw for mounting holder or by drilling holes on reflection mirror body.
- (3) Hold the "heater cap" of quartz far infrared heater by "mounting holder". Do not hold it by "quartz tube" or "safety insulator".

Cautions on Installation

- After heating, tighten the nuts once more. (By heat expansion, it may be loosened.)
- Additional tightening of the tightening bolt is recommended to only one side as Quartz Far Infrared Heater may be broken due to the different coefficient of heat expansion.

Part Number Type	L (Effective Length) 10mm Increment	V (Voltage)	W (Electrical Power)
MPHHS Set	150-240	100	250
	250-340	100	400
	350-440	200	500
MPHH Quartz Far Infrared Heater only	450-540	100	500
	550-600	200	600
		100	1000
		200	800

Application Example



Usage

- Desiccation of the Base and Material
 - Baking Finish and Desiccation of the Coat
 - Baking (Processing), Dehydration and Desiccation of Food
- Because infrared ray heats the object directly through no air, it is more efficient.

Part Number Example

Part Number: **MPHHS - L - V**

Example: **MPHHS - 150 - V100**

Features

- The quartz far infrared heater has Nickel-chrome wires wrapped inside the quartz glass tube, which irradiate far infrared ray to the heated objects.
- Although its function is similar to that of far infrared ceramic heaters, compared with ceramic heater it has the following features: (1) Rise/Drop in temperature are quick after the power is supplied (2) Relatively broad heat distribution (3) Heat radiation direction is easily controlled.
- The far infrared ray uniformly heats the surface and interior of the object.
- The temperature adjustment can be done by adjusting the distance to the heated object.
- This is a clean heater with little dust scattering. The used quartz tube has excellent chemical resistance.
- By using the reflection mirror, the irradiation direction of far infrared ray can be controlled, and more effective heat radiation can be obtained.

Cautions for Use

- ⚠ Products are made of glass. Use caution while handling since it is easy to break.
- ⚠ Turn off the power immediately if breakage occurs during operation.
- ⚠ Products are for horizontal (lateral) use. Not usable in position of vertical (standing positioned) and slant (oblique positioned).
- ⚠ This heater becomes very hot. It may result in burn injury if touched while light is on or immediately after lights-out.
- ⚠ The cap part (insulators on both ends of quartz tube) should be used at a temperature lower than 100°C.
- ⚠ Do not touch the glass tube with bare hand. Sodium from sweat decreases the mechanical strength of quartz tubes.

Peltier Cooling Unit Controller

Feature: Special controllers designed to adjust the temperature of Peltier Effect Cooling Units on P.3752. Excels in high precision control.

Peltier Cooling Unit Controller

PLCN

Dimensions: 110 (width), 180 (height), 9 (depth), 11 (feet), 88 (feet), 11 (feet), 15 (feet), 165 (width), 180 (width), 25 (feet), 25 (feet)

Set Screw 4-M3

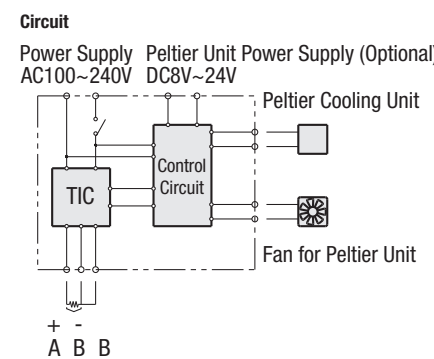
Part Number Example

Part Number: **PLCN**

Input	Thermocouples (K / J / R / T / N / S / B) Temperature Measuring Resistor (Pt100 JPt100)
Control Method	With auto tuning PID control, with self tuning PID control, ON/OFF control
Indication Accuracy (Thermocouple)	The bigger one of ±0.3% of specified value + 1 digit or ±2°C
Indication Accuracy (Temperature Measuring Resistor)	The bigger one of ±0.3% of specified value + 1 digit or ±0.9°C
Indication Accuracy Maintenance Temperature Range	Ambient Temperature: 23±10°C
Display Breakdown Capability	0.1°C
Range of Set Temperature	-30~120°C
Proportional Control (P)	0.1~200%
Integration Time (I)	0~3, 600 sec.
Derivative Time(D)	0~3, 600 sec.
Peltier Driving Method	PWM Driving
Power Supply	Supplied Externally (DC9~24V)
Peltier Driving Capability	DC24V 7A (Maximum in Regular Time)
Operating Environment	Indoors
Operating Temp. Range	10~40°C
Operating Humidity Range	85% or less (No condensation)
Sampling Frequency	500 mS
Storage Element	EEPROM
Power Supply Voltage	AC 100~240V (Allowable voltage change range 85~264V)
Power Consumption	15 VA (maximum)
Mass	Approx. 2.7 kg

Overview

Peltier Cooling Unit (P.3752) Temperature adjustment controllers capable of heating/cooling control of Peltier Cooling Units. Suitable for not only small chiller and experiment machine but also building into device owing to the compact design specialized in control function. (Power source needs to be obtained by customer.)



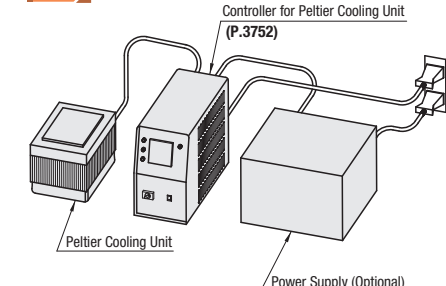
Precautions for Use

- ⚠ Only one Peltier Cooling Unit (P.3752) can be connected to one controller.
- ⚠ DC power source or power plug is not included.

Sensor Input Types and Sensor Range

Sensors	Lower to Upper	Limit Setting of Decimal Point
00 K Thermocouple	-200~1372	-199.9~990.0
01 J Thermocouple	-200~850	-199.9~850.0
02 R Thermocouple	0~1700	
03 T Thermocouple	-200~400	-199.9~390.0
04 N Thermocouple	-200~1300	-199.9~990.0
05 S Thermocouple	0~1700	
06 B Thermocouple	0~1800	
10 Pt100Ω	-199~500	-199.9~500.0
11 JPt100Ω	-199~500	-199.9~500.0

Application Example



Warranty

Warranty Period: One year from the shipping date
Warranty Condition: Please present the guarantee card included at the time of delivery.
Coverage of Warranty: Problems or damages arising through the normal usage in compliance with the instruction manual included at the time of delivery.
If trouble occurs during the warranty period even though the unit has been operated in the normal manner, we will recover and repair or replace the unit.
In the following cases, repairs are for consideration. We will recover the product and make an quotation.
(1) When the damage caused by the factors out of warranty range and the product is repairable.
(2) When the damage has occurred beyond the warranty period and the product is repairable.