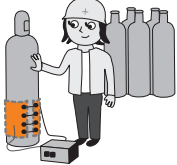
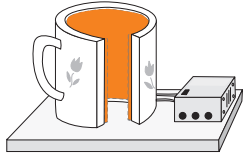


DESIGN OF HEAT

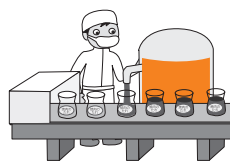
Do you have
Threehigh?



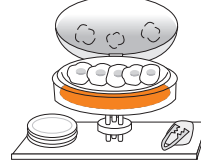
Heater for bombe (cylinder)



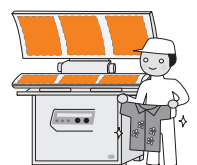
Mug logo transfer heater



Heating and thermal insulation for food industry



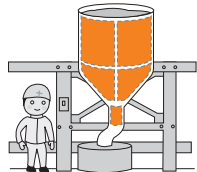
Commercial heating for restaurant cooking



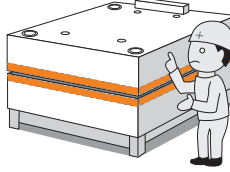
Heater for dryer



Drum can heater



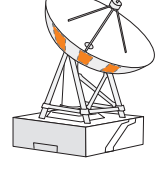
Heating and thermal insulation heater for hopper



Resin mold preheating heater



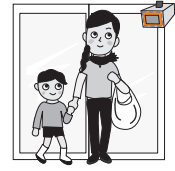
Insulation heater for delivery bike



Snow melting heater for parabolic antenna



Plywood preheater for musical instrument



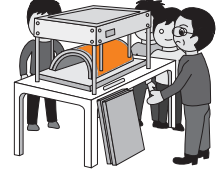
Anti-freezing heater for surveillance camera



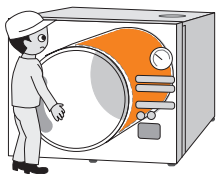
Heating and insulating heater for liquids



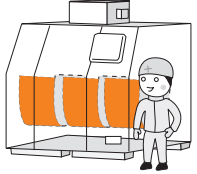
Motorcycle grip heater



Jig heater for university students



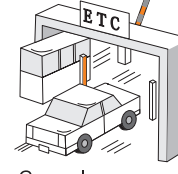
Air heater / Heat insulation heater



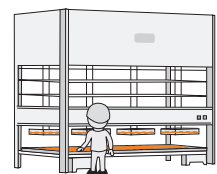
Heater for heating garbage processing machine



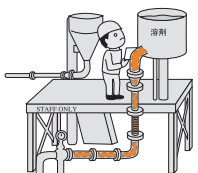
Rice milling machine condensation prevention heater



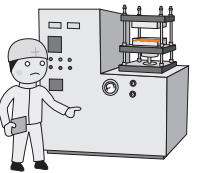
General expressway ETC gate (lane) snow melting heater



Heating / warming heater for production line



Piping heater



Decorative plate press heater



18-liter square can heater



Heating heater for rocket assembly parts



Footbath heater/bedrock heater



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THREE HIGH CO.,LTD.



SILICONE RUBBER HEATER

シリコンラバーヒーター

There are reasons why many companies, educational and research institutions choose our heaters.

It is because we are manufacturer specialized in Silicone rubber heater.

We will assist you in manufacturing from one sheet to mass production.

More than 6000 companies as our customers as of 2020.

Flexible

Silicone rubber heater is flexible surface heating element that metal heater does not have.

- This is structured by patterning the resistance wires between two silicone sheets that are calendered on a glass cloth.
- Excellent flexibility and can be perfectly fitted to heating objects such as curved surfaces and cylinders.
- Thin sheet with a standard thickness of 1.5 mm provides excellent thermal response.

Manufacturing from one sheet

We do not require any design or model fee.

- Silicone rubber heaters were developed by NASA in the U.S. around 1965, and are now used in various Japanese industries as precision heater components or equipments.
- Using the special manufacturing method, silicone rubber heaters can be manufactured in a short period of time even for orders from one sheet.

High durability

Silicone rubber heaters can be used at continuous temperatures of 200°C (or 260°C) with a long service life.

- Silicone rubber heaters have heat-resistant electrical insulation, but do not have the heater's self-temperature control function. Be sure to control the heater temperature when using high power density.

- UL-compliant products are also available.

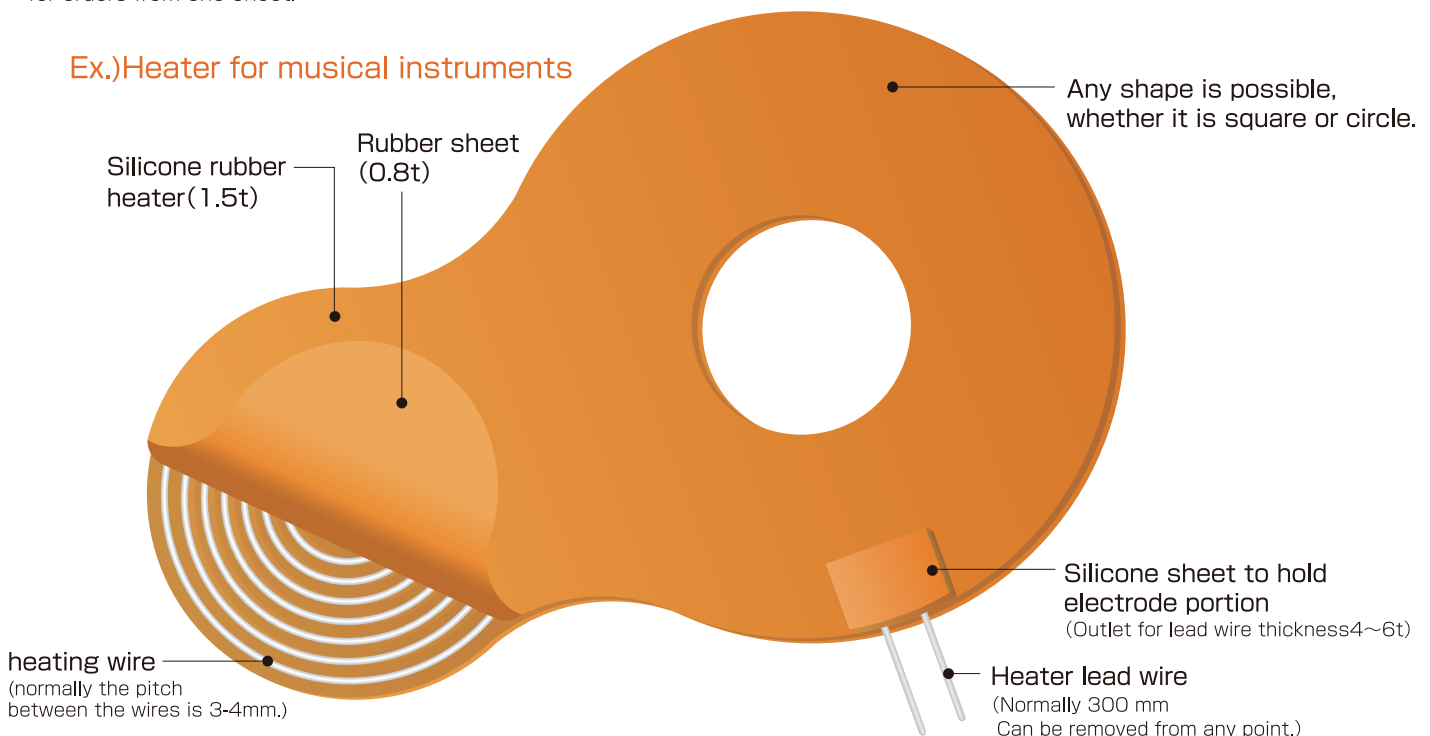
※ Monoone+ B/W digital temperature controller is recommended.

Free design

Fused with the required technology, it can be manufactured in a free-form design.

- If there are simple illustrations or drawings, we will design according to the shape of heating objects, such as circles, deformed and perforated shapes.
- We can design at various voltages up to 240 voltages.

Ex.) Heater for musical instruments



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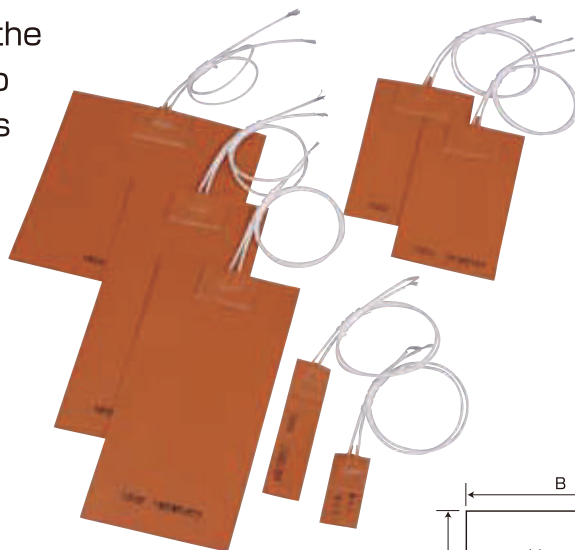
SILICONE RUBBER HEATER

シリコンラバーヒーター

This product can be shipped on the same day from urgent purpose to prototype development and mass production.

(Only for domestic order)

It can be combined with a variety of options.



SR type

Made in Japan

Heat Resistant
200°C/392°F

RoHS2
Compliance

Product Overview

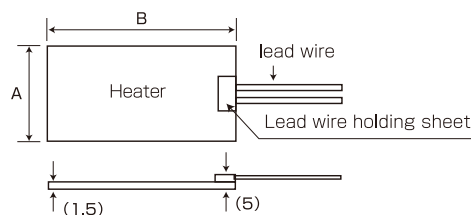
Standard products from 25mm to 300mm width are always in stock, so they will be delivered immediately. (Only for domestic order)

Product Features

It is easy to use.
Available with home use 100V power supply so it can be easily tested.
Careful finishing and processing by expert staffs and comes with 300mm lead wire.
We separately accept mounting and processing, temperature controller, etc.

Cautions

Do not empty heat in a standby mode. Fire risk! It can be the same when there is a gap between the heater and the heater mounting surface. When sandwiching the heater between the metal plate and the heating object, make sure that the lead wire and the lead wire holding sheet do not come into contact with the metal plate.
Do not use the product in an atmosphere containing vapors, water, corrosive gases, etc.
Do not drill holes in the heater. Do not use if the rubber is damaged.
Do not use the heater by bending it. Minimum bend of the heater is R25. (Lead wire holding sheet does not bend very much.)
Do not operate the product above the rated voltage.
Be sure to turn off the power when disconnecting the heater from the heating object. Do not touch the heater right after the power is turned off.
If there is a gap between the heating object and the heater, it shows an abnormal rise in the temperature. Fully care must be taken to fix the heater.
Do not apply force to the lead wire holding sheet.



Specifications

With AC100V 300mm lead wire Power density 0.8w/cm² (Refer to the chart for temperature rise on the next page.)

In stock

Product code	Wattage (W)	Size (AxB) (mmxmm)
SR100- 10-25- 50	10	25 x 50
SR100- 12-30- 50	12	30 x 50
SR100- 20-25-100	20	25 x 100
SR100- 25-25-125	25	25 x 125
SR100- 30-25-150	30	25 x 150
SR100- 40-25-200	40	25 x 200
SR100- 50-25-250	50	25 x 250
SR100- 60-25-300	60	25 x 300
SR100- 20-50- 50	20	50 x 50
SR100- 40-50-100	40	50 x 100
SR100- 50-50-125	50	50 x 125
SR100- 60-50-150	60	50 x 150
SR100- 80-50-200	80	50 x 200
SR100-100-50-250	100	50 x 250
SR100-120-50-300	120	50 x 300
SR100- 60-75-100	60	75 x 100
SR100- 75-75-125	75	75 x 125

Product code	Wattage (W)	Size (AxB) (mmxmm)
SR100- 90- 75-150	90	75 x 150
SR100-120- 75-200	120	75 x 200
SR100-150- 75-250	150	75 x 250
SR100-180- 75-300	180	75 x 300
SR100- 80-100-100	80	100 x 100
SR100-100-100-125	100	100 x 125
SR100-120-100-150	120	100 x 150
SR100-160-100-200	160	100 x 200
SR100-200-100-250	200	100 x 250
SR100-240-100-300	240	100 x 300
SR100-125-125-125	125	125 x 125
SR100-150-125-150	150	125 x 150
SR100-200-125-200	200	125 x 200
SR100-250-125-250	250	125 x 250
SR100-300-125-300	300	125 x 300
SR100-180-150-150	180	150 x 150
SR100-240-150-200	240	150 x 200

Product code	Wattage (W)	Size (AxB) (mmxmm)
SR100-300-150-250	300	150 x 250
SR100-360-150-300	360	150 x 300
SR100-320-200-200	320	200 x 200
SR100-400-200-250	400	200 x 250
SR100-480-200-300	480	200 x 300
SR100-500-250-250	500	250 x 250
SR100-600-250-300	600	250 x 300
SR100-720-300-300	720	300 x 300

Temperature control

- Analog type
Suitable for simple temperature control (0 to 100°C variable knob type)
- Digital type
Suitable for more accurate temperature control (0 to 999°C variable button type)

Please do not hesitate to contact us for the EXW prices of the products in stock. We can also manufacture from one heater based on a separate estimate for heaters other than the listed dimensions, voltage, power density, wattage, and lead wire length in the table.



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SILICONE RUBBER HEATER

シリコンラバーヒーター

Silicone rubber heater with double-sided tape and release paper(Semi-custom-made product)

It is a product with a heat resistance 200°C

double-sided tape (with release paper) on a rubber heater.

Heat Resistant
200°C/392°F

RoHS2
Compliance

Additional options

The lead wire of the silicone rubber heater can be extended or the thermocouple type

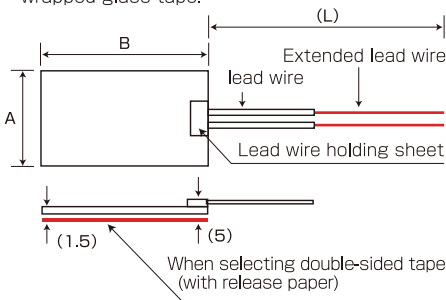
K can be additionally processed.

※The thermocouple is a fluoro-resin-coated TH-8181 series.

When adding lead wire

■ When adding lead wires, "-L (Length)" is appended to the end of the model number.

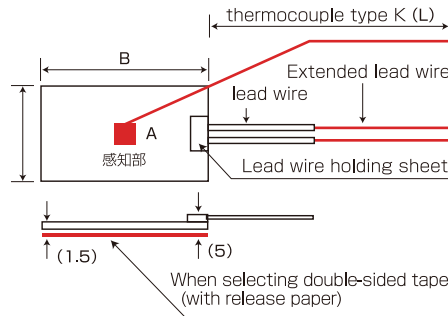
※Extension is done by crimping terminal, and a silicone shrinkable tube is covered on the top of wrapped glass tape.



When adding thermocouple type K

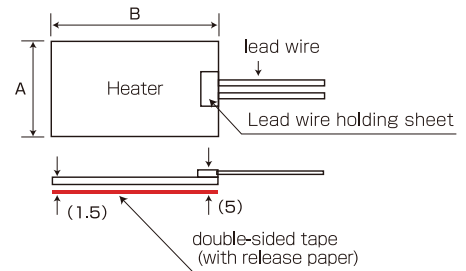
■ "-K (Length)" is appended to the end of the model number.

※When additional thermocouple processing is performed, the lead wire is also extended.



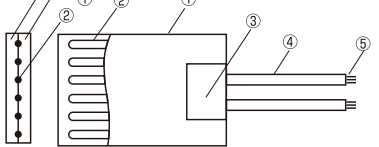
SR type With double-sided tape

■ "-P" is appended to the end of the model number.



Basic structure

● This is a structure that is integrated into a thin sheet by arranging the resistance elements between two silicone rubber sheet, and then compress after removing the internal air.



- ①Silicone rubber sheet
- ②Heating wire
- ③Silicone sheet to hold electrode portion
- ④Lead wire
- ⑤Lead tracks

Mounting method

- Silicone heat-resistant adhesive 100g tube
Apply silicone rubber heater-specific adhesive to the silicone rubber heater and adhere it to the heating objects.
- Double-sided tape processing
Apply double-sided tape to the back of the silicone rubber heater and adhere it to the heating objects.
(Double-sided tape cannot be adhered by the customer.)
- Baking finish Baking process to integrate is finished at our factory.
- Cylindrical objects, etc.
Velcro tape system, SUS, band, hook spring system, snap button system

Specifications

- Heat resistance temperature
SRtype 200°C continuous
Highest operating temperature 230°C
HTtype 260°C continuous
Highest operating temperature 280°C
- Electrical Characteristics
Capacity tolerance $\pm 10\%$
Withstand voltage AC1500V(per minute)
100M Ω or more/500VDC
- Insulation resistance
Dimensions
Max. 450mmx3000mm or 500x700mm
Min. 25mmx30mm
Standard thickness 1.5mm
(Thickness of power input section is 4-6mm.)
- Please contact us if you require
UL-compliant product.

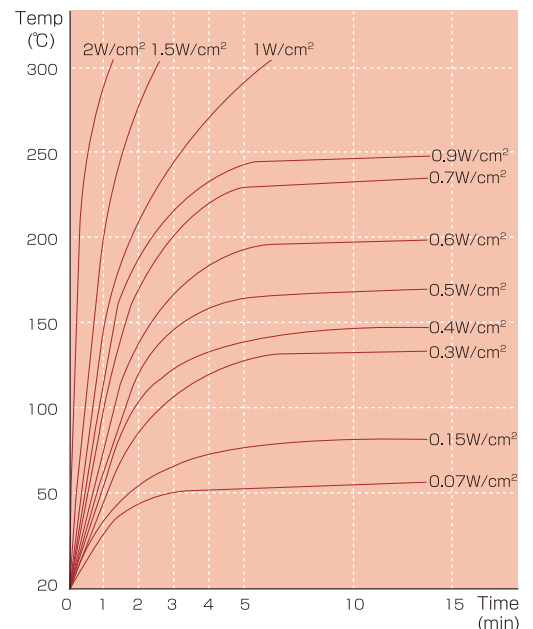
Power density

It depends on the required temperature, but generally 0.08W/cm² or below is optimal.
(Be aware that temperature control becomes difficult when the power density goes too high.)

Temperature control

- Analog type
Suitable for simple temperature control
(0 to 100°C variable knob type)
- Digital type
Suitable for more accurate temperature control
(0 to 999°C variable button type)

Surface temperature in the air



※Measure the heater itself in the air at room temperature
The heater surface temperature changes depending on the operating environment, material and shape of the object to be heated.



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SILICONE RUBBER HEATER FOR PIPES

配管用シリコンラバーヒーター

Compatible with a wide range from 20A to 750A.
Manufacture a completely original heater
from one unit is available.

Heat Resistant
200°C/392°F*

RoHS2
Compliance

Product Overview

Can manufacture from one heater
regardless of the shape.
Rubber pipe heaters are compatible
with a wide range from 20A to 750A.
We manufacture completely original
heaters which are detachable and compatible
with different types of pipes from one unit.
We also have temperature controllers in our product lineup.



Cautions

- [1] Do not empty heat in a standby mode. Or else, it may cause ignition, etc.
It can be the same when the heater is floating from the heater mounting surface.
- [2] When sandwiching the heater between the metal plate and the heating object, make sure that the lead wire do not touch the metal plate.
- [3] Can not use the product in an atmosphere containing vapors, water, corrosive gases, etc.
- [4] Can not drill holes etc. in the heater.
Can not be used if the rubber is damaged.
- [5] Do not operate the product above the rated voltage.
- [6] Be sure to turn off the power when disconnecting the heater from the heating object.
Do not touch the heater right after the power is turned off.
- [7] If there is a gap between the heating object and the heater, the temperature rises abnormally.
Fully care must be taken to fix the heater.



Electrical characteristics

Minimum voltage : Please consult us.
Maximum voltage : 240V (Please consult us for further information.)
Capacity tolerance : $\pm 10\%$
Withstand voltage : AC1500V per minute
Insulation resistance : 100 Ω M/500VDC

Electric current

From 20A to 750A

(Contact us for other electric current)

Heat resistance

200°C (Continuously 180°C)

Standard power density

0.3W/cm²

Mounting method

Snap button method / Hook spring system
Heat-resistant Velcro tape method



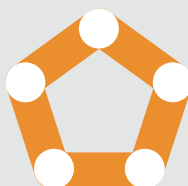
Straight



Elbow



Reducer



Clamp



Cheese



Flexible

※Please consult us about valves, flanges, etc.

Temperature control

Analog type / Suitable for simple temperature control
(0~100°C Variable knob type, etc.)
Digital type / Suitable for more accurate temperature control
(0~999°C Variable button type)

Related products



Silicone belt heater



Silicone spiral heater



Mantle heater



Cord heater



Ribbon heater



Silicone sponge sheet



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NUKADAMA REMOVER

ヌカ玉バスター

Heat helps to keep the piping cleaned. 

ヌカ玉 バスター

Nukadama Remover



High durability at high temperature.
Perfectly fits in any curved shape.

Heat Resistant
200°C/392°F

RoHS2
Compliance

Reduce the cleaning frequency

Quality improvement

※Nukadama is rice bran ball in Japanese.

Nukadama Remover is our original product that applied a silicone rubber heater. Warming the pipe with the Nukadama Remover will make the path inside the pipe smoothly and prevent from adhering the rice bran. It reduces time for pipe cleaning and gives you more time for other operations.

Features

- 1 Flexible**
Excellent flexibility and flat heating element perfectly fits your piping.
- 2 High durability**
Can be used continuously at temperature of 200°C.
- 3 Custom made**
We manufacture from one unit.
- 4 Freedom in design**
Available in manufacturing any shapes such as round, perforated or irregular.

ヌカ玉バスター

Nukadama Remover

Examples



Elbow type



Straight type

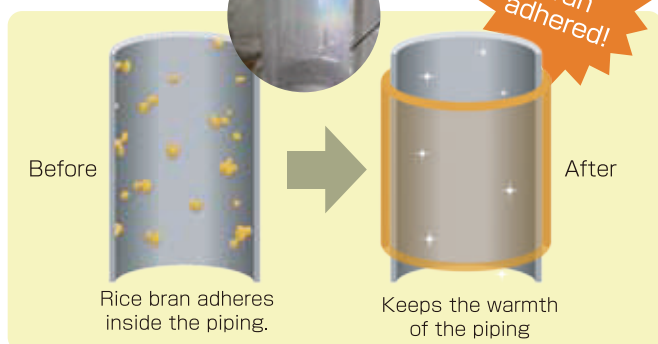


ヌカ玉バスター

Installation result

The picture shows rice bran adhering.

No rice bran adhered!



Heating the pipe with the Nukadama Remover will prevent from adhering the rice bran. It reduces time for pipe cleaning and gives you more time for other operations.

Reference size (Only the body)

Product name	Voltage (V)	Wattage (W)	Size (A×B) (mm×mm)
Straight type	100	18	110×25
Elbow type	100	10	150×25
	100	10	160×30

The voltage, wattage and size can be changed according to your request.

Mounting Options

Bimetal thermostat/Velcro tape/Double-sided tape

Temperature control

Analog type/Suitable for simple temperature control (0~100°C Variable knob type, etc.)

Digital type/Suitable for more accurate temperature control (0~999°C Variable button type)



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CORD HEATER

コードヒーター

It can accommodate complex shapes such as pipes, valves, and pumps.
It can be easily heated and kept warm.

Made in Japan

Heat Resistant
200°C/392°F

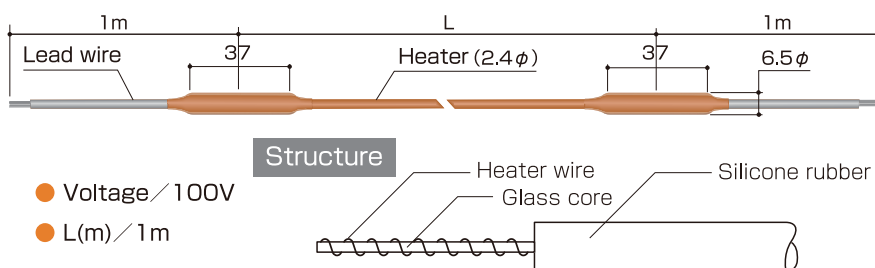
RoHS2
Compliance



Silicone-coated cord heater

Please feel free to ask us for prices and other specifications.

A very soft cord-like heater that is easy to wrap.



Selection Standard

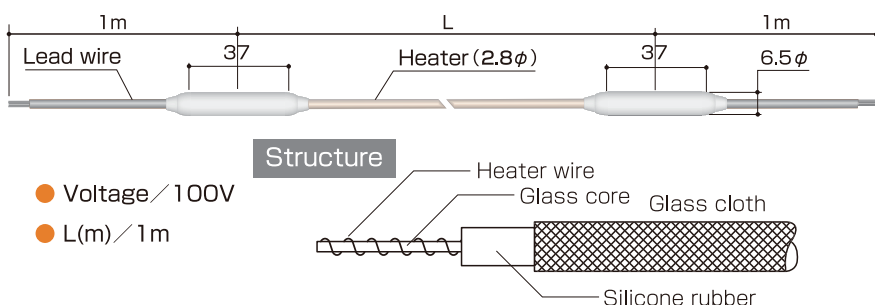
Product code	Wattage
SC100-10-1000	10
SC100-20-1000	20
SC100-30-1000	30
SC100-40-1000	40
SC100-50-1000	50

We started fluoropolymer (PTFE) coated cord heaters and silicone glass coated cord heaters, which had frequent requests from customers.

Silicone glass coated cord heater (White)

Please feel free to ask us for prices and other specifications.

Compared with conventional silicone cord heaters, it has reinforced a glass cloth on the outside.



Selection Standard

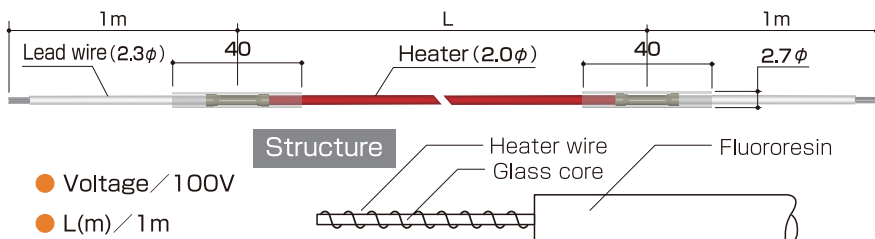
Product code	Wattage
SG100-10-1000	10
SG100-20-1000	20
SG100-30-1000	30
SG100-40-1000	40
SG100-50-1000	50

Fluoropolymer (PTFE) coated cord heater (Red)

Please feel free to ask us for prices and other specifications.

It is a fluoropolymer (PTFE) coated cord heater.

Lead wires are also fluororesin, so they can be used in clean rooms, etc.



Selection Standard

Product code	Wattage
TC100- 8-1000	8
TC100-16-1000	16
TC100-25-1000	25
TC100-50-1000	50



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SILICONE BELT HEATER

シリコンベルトヒーター

It can accommodate complex shapes such as pipes, valves, and pumps.
It can be easily heated and kept warm.

Made in Japan

Heat Resistant
200°C/392°F

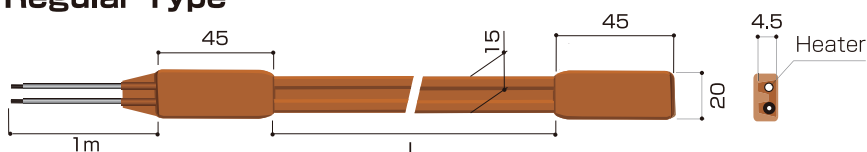
RoHS2
Compliance



Silicone-belt heater

Please feel free to ask us for prices and other specifications.

Regular Type



● Voltage/100V



Selection Standard

Product code	Wattage	L(m)
SB100- 10-1000	10	1m
SB100- 20-1000	20	
SB100- 30-1000	30	

Product code	Wattage	L(m)
SB100- 40-1000	40	1m
SB100- 50-1000	50	
SB100- 90-3000	90	3m

Product code	Wattage	L(m)
SB100-150-3000	150	3m
SB100-150-5000	150	5m
SB100-250-5000	250	

Slim Type



● Voltage/100V



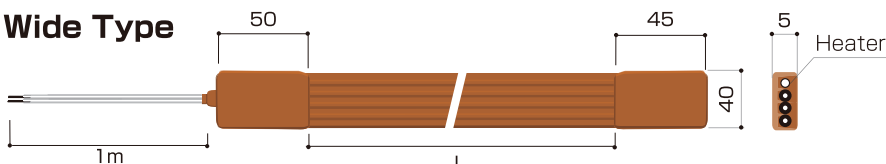
Selection Standard

Product code	Wattage	L(m)
SBS100- 10-1000	10	1m
SBS100- 20-1000	20	
SBS100- 30-1000	30	

Product code	Wattage	L(m)
SBS100- 40-1000	40	1m
SBS100- 50-1000	50	
SBS100- 90-3000	90	3m

Product code	Wattage	L(m)
SBS100-150-3000	150	3m
SBS100-150-5000	150	5m
SBS100-250-5000	250	

Wide Type



● Voltage/100V



Selection Standard

Product code	Wattage	L(m)
SBW100- 20-1000	20	1m
SBW100- 40-1000	40	

Product code	Wattage	L(m)
SBW100- 60-1000	60	1m
SBW100- 80-1000	80	

Product code	Wattage	L(m)
SBW100-100-1000	100	1m



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RIBBON HEATER

リボンヒーター

It is a belt type heater with heat resistant temperature up to 400°C/700°C.

It can accommodate complex shapes such as pipes, valves, and pumps.



Made in Japan

RoHS2
Compliance

Normal limit
350°C

Heat Resistant
700°C

Normal limit
450°C

Heat Resistant
700°C

Electrical
Characteristics

Minimum voltage : Please consult us.
Maximum voltage : Up to 400V
Capacity tolerance : ±10%

■ Ribbon heater(Heat resistant 400°C/Normal use 350°C) 100V specification The 100V plug is not included. Please install it by the customer.

Width×Length(mm)	100W	150W	200W	300W	400W	500W	600W	1kW
20 × 1,000	○	○	○	○				
25 × 1,000	○	○	○	○				
30 × 1,000	○	○	○	○				
35 × 1,000	○	○	○	○	○			
40 × 1,000	○	○	○	○	○			
50 × 1,000	○	○	○	○	○			
100 × 1,000	○	○	○	○	○	○	○	○
20 × 1,500	○	○	○	○				
25 × 1,500	○	○	○	○	○			
30 × 1,500	○	○	○	○	○			
35 × 1,500	○	○	○	○	○			
40 × 1,500	○	○	○	○	○	○	○	
50 × 1,500	○	○	○	○	○	○	○	
100 × 1,500	○	○	○	○	○	○	○	○
20 × 2,000	○	○	○	○	○	○	○	
25 × 2,000	○	○	○	○	○	○	○	
30 × 2,000	○	○	○	○	○	○	○	
35 × 2,000	○	○	○	○	○	○	○	
40 × 2,000	○	○	○	○	○	○	○	○
50 × 2,000	○	○	○	○	○	○	○	○
100 × 2,000	○	○	○	○	○	○	○	○
20 × 3,000	○	○	○	○	○	○	○	
25 × 3,000	○	○	○	○	○	○	○	
30 × 3,000	○	○	○	○	○	○	○	
35 × 3,000	○	○	○	○	○	○	○	○
40 × 3,000	○	○	○	○	○	○	○	○
50 × 3,000	○	○	○	○	○	○	○	○
100 × 3,000	○	○	○	○	○	○	○	○
20 × 4,000	○	○	○	○	○	○	○	
25 × 4,000	○	○	○	○	○	○	○	
30 × 4,000	○	○	○	○	○	○	○	
35 × 4,000	○	○	○	○	○	○	○	
40 × 4,000	○	○	○	○	○	○	○	○
50 × 4,000	○	○	○	○	○	○	○	○
100 × 4,000	○	○	○	○	○	○	○	○
20 × 5,000		○	○	○	○	○		
25 × 5,000		○	○	○	○	○		
30 × 5,000		○	○	○	○	○	○	
35 × 5,000		○	○	○	○	○	○	
40 × 5,000		○	○	○	○	○	○	○
50 × 5,000		○	○	○	○	○	○	○
100 × 5,000		○	○	○	○	○	○	○

Selection Standard

Glass type(Heat resistant 400°C/Normal use 350°C) 100V specification

Product code

Wattage	Size(mm×mm)
---------	-------------

RB100-100-20-1000

100	20 x 1000
-----	-----------

RB100-200-20-2000

200	20 x 2000
-----	-----------

RB100-300-20-3000

300	20 x 3000
-----	-----------

RB100-400-20-4000

400	20 x 4000
-----	-----------

RB100-500-20-5000

500	20 x 5000
-----	-----------

RB100-1000-40-5000

1000	40 x 5000
------	-----------

Silica glass type(Heat resistant 700°C/Normal use 450°C) 100V specification

Product code

Wattage	Size(mm×mm)
---------	-------------

SRB100-200-25-1000

200	25 x 1000
-----	-----------

SRB100-400-20-2000

400	20 x 2000
-----	-----------

SRB100-600-20-3000

600	20 x 3000
-----	-----------

SRB100-1000-40-5000

1000	40 x 5000
------	-----------

Precautions

Material is glass cloth.

Be sure to use a temperature controller or voltage controller together with the product.

We accept orders other than the standard products. We also manufacture products for 200V and for high temperatures (heat resistant 700°C).

The width of 20 mm may be up to 25 mm due to the manufacturing process.

Be careful if the product is used in excess of the normal limit range, since the insulation resistance may drop and there is a risk of electric leakage.



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RIBBON HEATER

リボンヒーター

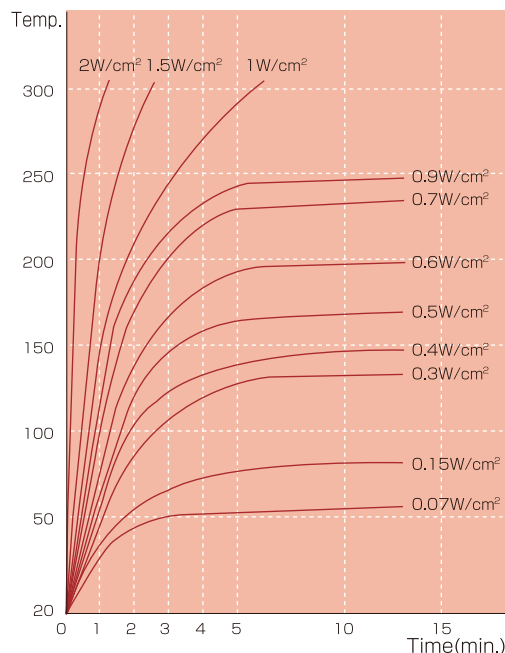
Product Overview

Order is available from one piece.

It can accommodate complex shapes such as pipes, valves, and pumps and is easy to heat and keep warm.

We also propose a temperature controller.

● Surface temperature in the air



The heater itself is measured in the air at room temperature. The surface temperature of the heater changes depending on the operating environment, the material of the heating object, shapes, etc.

Please be sure to read.

(1) Please realize the heat resistance temperature of glass fiber. ※Non-combustible

- ① General products max400°C— Normal operating temperature350°C
- ② Products for high temperatures max700°C— Normal operating temperature450°C

Cautions

① Is made of ordinary glass fiber
 ② Is made of silica-based glass fiber
 If the temperature exceeds the heat resistance temperature, the fiber becomes vitrified and collapses. This is dangerous causing internal thermal warfare to appear on the surface that results being in a short circuit.
 Be sure to use a temperature controller, voltage controller, input regulator, etc.

(2) Be sure to understand the weak points of the glass fiber products.

① Due to the structure of the product that is a hygroscopic electronic appliance, it is not suitable for use or storage in the following places:

It is absolutely not allowed for outdoor use.

- (A) With the heater itself with no covers
- (B) Areas where condensation can be formed
- (C) Areas where water drops, etc., may fall
- (D) Places with high acid atmosphere

② Since it is weak against friction and snags

- (A) When the heating object is vibrating
 - (B) When the heating object rotates
 - (C) When the heating object has burrs, protrusions, etc.
 - (D) When using in areas where frequency desorption is abnormally high.
- However, in the case of D, it can be avoided if care is taken in handling.

Temperature control

Digital type/Suitable for more accurate temperature control (0~999°C Variable button type)

Related products



Silicone belt heater, Cord heater, Silicone spiral heater



Ribbon heater

Ribbon heaters for clean rooms

For the outer covering material, PTFE 100% cloth with excellent flexibility and chemical resistance is used which is perfect for clean room.

Heat-generating wires are made of stainless fiber wire, which is resistant to bending and has excellent flexibility.



※PTFE is a sheet which is plainly woven with an original yarn that had been specially processed with polytetrafluoroethylene. (0.2 mm thick/white).

Precautions

※Material is PTFE.

※The connector is not included. If necessary, please contact us.

※The maximum heat resisting temperature of this product is 260°C, but to maintain the cleanness, be sure to use a temperature controller or a voltage controller together and use it at a temperature below 260°C.

※Although it will repel water on the surface, the product is not perfectly waterproof or drip-proof. Please fully take care when handling or in use.

※It is also optimal for frequent desorption.

※Please consult us if you have any orders other than the standard products.

※Products for 200V are also available.

※The 100V plug is not included. Please install it by the customer.

Normal limit
350°C

Heat Resistant
260°C

Selection Standard

PTFE type(Heat resistant 260°C)
100V specification

Product code	
Wattage	Size(mm×mm)
CRB100-110-20-1000	
110	20 x 1000
CRB100-220-20-2000	
220	20 x 2000

Warning

	Never apply water to the heater or use it outdoors. Never operate the product with wet hands. Be sure to remove the connector with holding the connector part. Because of its material that absorbs moisture, please be careful when storing it in a humid place.
	The temperature of the main body rises while it is energized. Do not touch it directly with your hands, etc. Make sure that the temperature of the heater is low before removing the heater. When using the product for a long time, pay attention to the peripheral equipment and the installation stand.
	Do not place flammable objects near the main body and the installation stand. During energization, take fully care to any flammable fluids, etc. When using the product for the first time, the inside may burnt brown with a smoke coming out. This is a phenomenon in which the organic-based powder that was attached to improve the slipperiness when weaving the glass fabric got burnt due to the heat. It only happens during the initial use, so there is no need to worry about.

Cautions

General	When handling the heater, do not bend or fold it back at a sharp angle because it uses a nichrome single wire. It may cause disconnection. Also the glass cloth is vulnerable to rubbing or snagging, so please be careful when attaching and removing. When using the product, use a slidac or voltage controller and temperature controller, and keep the surface temperature of the heater below 400°C.
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SILICONE SPIRAL HEATER

シリコンスパイラルヒーター

It can accommodate complex shapes such as pipes, valves, and pumps.

It can be easily heated and kept warm.



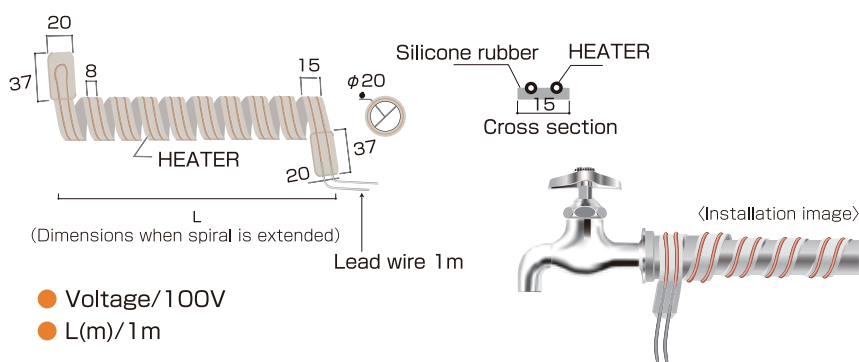
Made in Japan

Heat Resistant
200°C/392°F*

RoHS2
Compliance

SILICONE SPIRAL HEATER

Please feel free to ask us for prices and other specifications.

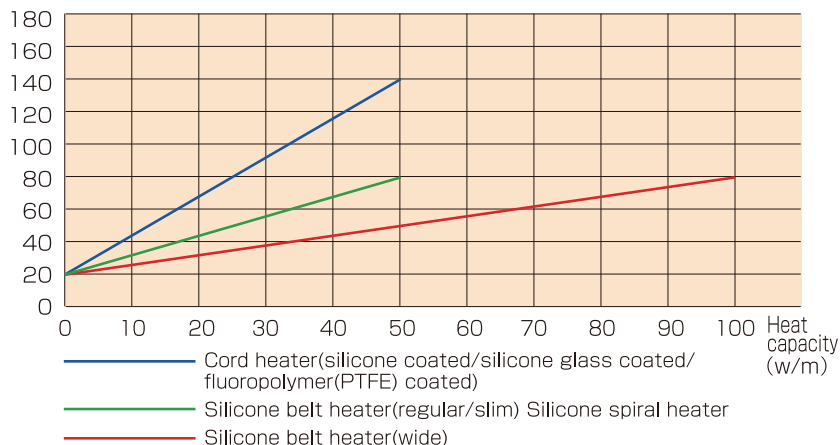


Selection Standard

Product code	Wattage
SP100-10-1000	10
SP100-20-1000	20
SP100-30-1000	30
SP100-40-1000	40
SP100-50-1000	50

Temperature characteristics of each heater by capacity

Surface temperature (°C)



The temperature in the table is the temperature obtained by measuring a single heater in a horizontal state in the air at room temperature of 20°C. Add or subtract the actual ambient temperature.

Mounting method



Various heat-resistant material tapes are available for fixing the heater.

- Silicone self-bonding tape
- Aluminum foil tape
- etc.



Electrical characteristics

Minimum voltage : Please consult us

Maximum voltage : 240V (Please consult us for further information.)

Capacity tolerance : ±10%

Withstand voltage : AC1500V per minute

Insulation resistance : 100Ω以上/500VDC

Temperature control

Analog type / Suitable for simple temperature control (0~100°C Variable knob type, etc.)

Digital type / Suitable for more accurate temperature control (0~99.9°C Variable button type)

Related products



Ribbon heater



Mantle heater



Silicone sponge sheet



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CERAMIC PLATE HEATER

セメンディングスポットヒーター

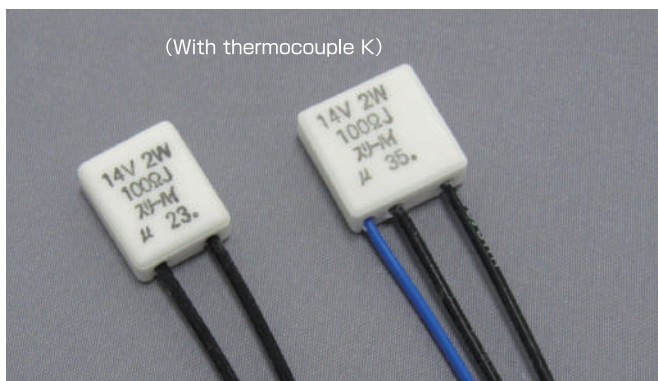
Made in Japan

Heat Resistant
200°C/392°F*

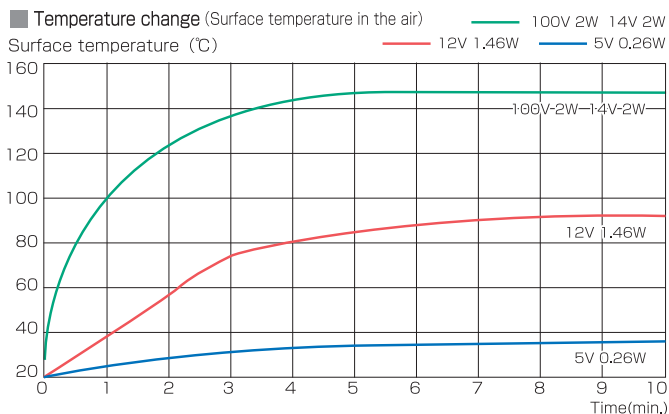
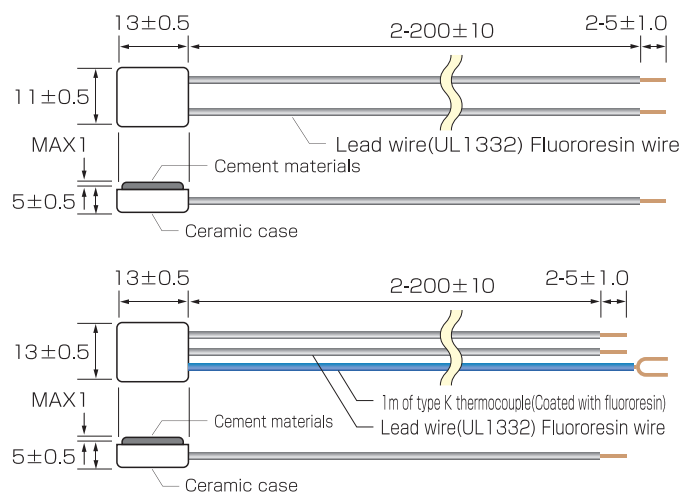
RoHS2
Compliance

MA SA NO RI
MASANORI®

First in Japan ! (Compatible with 12V and 5V as well.)
Tiny ceramic plate heater



↑ Almost actual size



Selection Standard

Product code	Standard	Size (mm)
MA1113-100-2	100V 2W	11×13
MA1113-14-2	14V 2W (12V 1.46W) (5V 0.26W)	
MA1313-100-2K (With thermocouple K)	100V 2W	13×13
MA1313-14-2K (With thermocouple K)	14V 2W (12V 1.46W) (5V 0.26W)	

Cautions for plate type thick film element ceramic heater with cord connection

Please pay attention to the following cautions when using the product.
Do not use for medical or other special purposes.

Environment for usage and storage

Insulation deterioration, corrosion, etc., may occur in places where corrosive gases are generated or where there are many dusts. Therefore, care must be taken in locations for installation and storage.

Placement

Leave a space between the heaters so that they are not affected by heat generation from other components.

Handling

Do not drop or give a shock that may cause damage.

The surface of the filler of this heater is water repellent, but contains porous in both the surface and the inside. Unlike common polymeric resins, it has properties such as moisture permeability, absorption of surfactants, and absorption of solvents and oils (fats and oils).

Do not use detergent to clean the surface of the filler.

Surfactant such as detergent will soak into the filler.

The impregnated detergent will not be able to escape outside and may cause the filler insulation to deteriorate.

Depending on the quality of the detergent, the heater element may also be damaged.

Do not use a substrate cleaning agent that contains a material that damages metals.

Components that damages the remaining metal will deteriorate the heater element. Water cleaning is basically recommended for cleaning.

Do not soak oil, etc., into the filler.

Depending on the quality of the absorbed oil, it may damage insulation deterioration or heater element.

Installation

Although this heater is water repellent, set it up in a location where the heater will not be exposed to water drops, water, etc.

It may damage the heater by generating heat with waterdrops adhering. (It may cause deterioration of insulation resistance due to a crack of the ceramic case, etc.)

Be careful not to apply excessive force to the terminals or heater body during installation.

We cannot determine the operating conditions after the heater is incorporated. Please use the heater after confirming thoroughly at your company.

Also, if a failure of our product is expected to cause serious damage such as human life, please take the following fail-safe design into sufficient consideration to ensure safety.

※Ensure system safety by setting up protection circuits and protection devices.

※Ensure system safety by providing a redundant circuit, etc. so that a single failure will not result in incomplete operation.

Temperature control

Digital type
Suitable for more accurate temperature control
(0~999°C Variable button type)



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CONTAINER HEATER

缶ヒーター

It solves your problems on site.
It makes the solvent easier to
handle by directly heating the can.

Type K

Drum container
Pail container
5 gallon square container

RoHS2
Compliance

Features

- Easy detachable without applying force and easy carrying.
- Can be used all the year round regardless of any industry.
- Anyone can use with a temperature control function.
- Excellent flexibility and durability.



Pail
container



5 gallon
square container

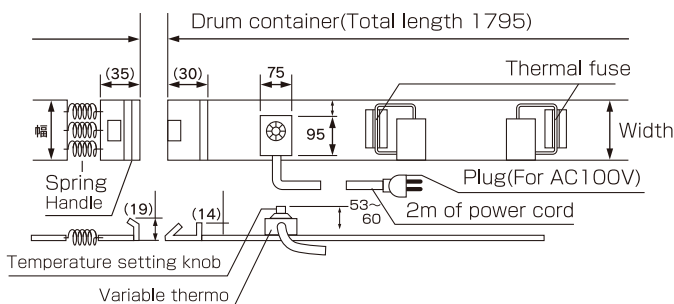


Drum
container

※Picture shows two can
heaters attached.



Simple
installation.



Product code	K-11W-PSE	K-21W-PSE
Adaptive can	Heater for pail container	Drum container
Adaptive can size for above	18ℓ・20ℓ Pail container (Φ286)	200ℓ Drum container (Φ567)
Voltage	100V	100V
Capacity	380W	900W
Width x total length	200×915	200×1795
Temperature setting	30~80℃	30~80℃
Power cord	2m(With plug)	2m(With plug)
Mass	Approximately 1.1 kg	Approximately 1.4 kg
Compatible with detachable insulation jacket	○	○

Two thermal fuses are built in all. Dimensions other than above are also available.



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CONTAINER HEATER

缶ヒーター



※The jackets for the drum containers are in a set of three.
※The picture above shows examples of attaching pail container(left), and drum container(right)
※The heater is sold separately.



Detachable with Velcro tape.

Type K

Drum container
Pail container
5 gallon square container

RoHS2
Compliance

Satisfaction guaranteed!

Detachable insulation jacket

Prevents radiation and increases heat retention effect!
It is also ideal for preventing burns.

Product code	K-PDAN	K-JDAN
Adaptive can	Heater for pail container	Drum container
Adaptive can size for above	18ℓ・20ℓ Pail container (Φ286)	200ℓ Drum container (Φ567)
Weight	624g	3100g
Width × total length	200×930	200×1800



With jacket

※The picture shows an example of mounting on a pail container.

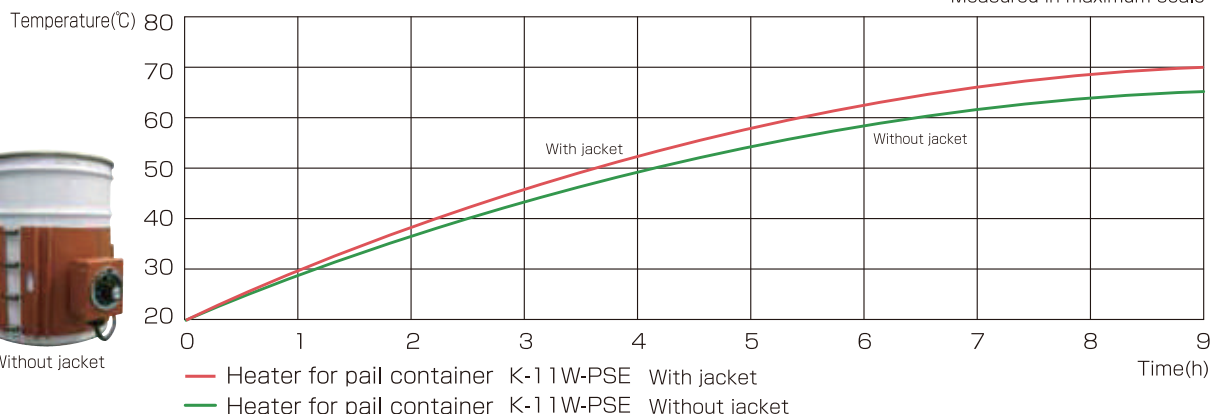


Without jacket

Temperature rising characteristic Heater for pail container (The container has a lid.)

At room temperature 20° C, in a windless environment
Heat up 18 liters water of its temperature 20°C.

Measured in maximum scale



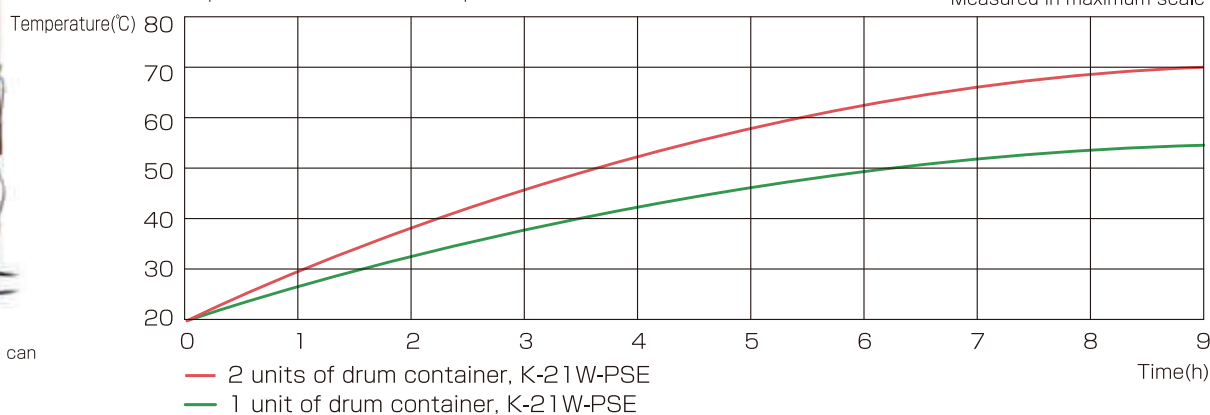
Without jacket

※The picture shows two can heaters attached.

Temperature rising characteristic Heater for Drum container (The container has a lid.)

At room temperature 20° C, in a windless environment
Heat up 200 liters water of its temperature 20°C.

Measured in maximum scale



Safety
Precautions



●This heater is for indoor use. ●Keep the ambient temperature of the heater below 70°C. ●Lead wire deterioration, disconnection, or electric leakage may occur. ●Do not pull the power cable forcefully. ●It may result disconnecting the cable or damaging the temperature controller. ●Never touch the heater surface after starting the heating. It may cause burns. ●The heater is not waterproof. Avoid using the product in an environment where water, oil, solvents, etc. can scatter. ●This heater does not have a forced OFF function. Be sure to disconnect the power cable from the power source when it is not used. ●To use the product safely, be sure to read the instruction manual thoroughly before use. ●This heater is not explosion-proof.



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BOTTOM HEATER

底面ヒーター

GOEMON-150

Pail cans Itto cans Dedicated heater

Simultaneous heating up to four cans

For painting, lubricants, cooking oil, etc.

Three improvements

- Prevention of high viscosity
- Alleviation of burden on workers
- Increase working efficiency

Features

- It can be easily heated and kept warm by simply placing the cans.
- Simultaneous heating and heat insulation of all four cans are possible.
- Effective for preventing high viscosity of viscous liquid and maintaining liquid temperature.
- Safety design (temperature controller, temperature fuse)



※The insulation cover is sold separately.

Easy to use

Easy three steps!



Place pail cans or five gallon cans on the heater (Up to four cans)

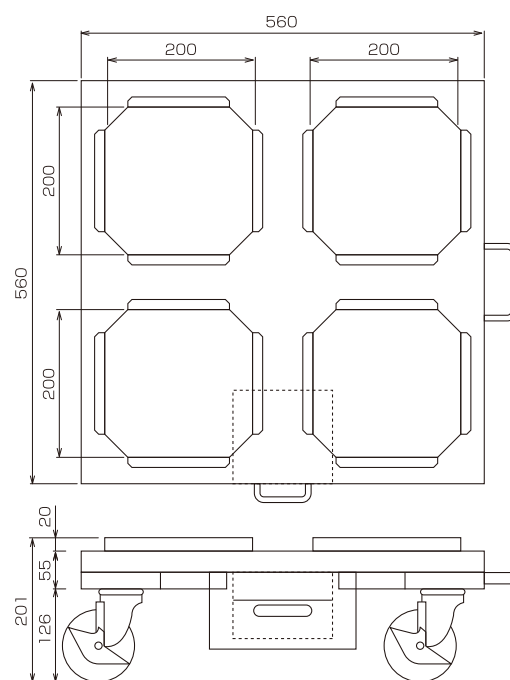


Insert the plug into the outlet. (100V)



Turn the dial to adjust the temperature (Up to 110°C/°F)

Pull out the temperature controller located on the side of the heater.



Energy saving design

GOEMON warm up altogether efficiently at the bottom so it can save power.

When warming up four cans

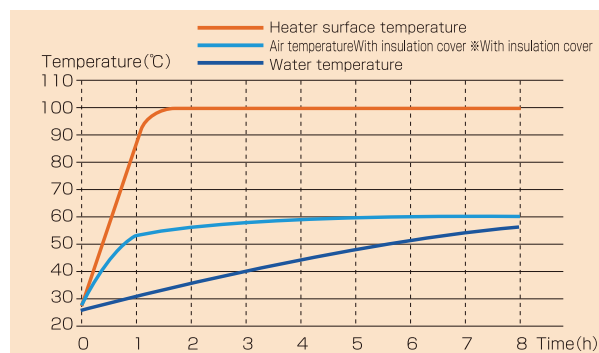
Comparing with the electricity rates, we gain profits of 7,257* yen per month!

※8 hours per day × 30 days Calculate with a unit price of 27 yen per 1kwh

GOEMON-150→400W Band type→1520W(680W×4) Comparing between the above two heaters.

Temperature change

※Test conditions/Temperature 25°C/77°F Water temperature 25°C/77°F 20ℓ water in the can



Product name	GOEMON-150(Without insulation cover)	GOEMON-150D(With insulation cover)
Product code	GN-150	GN-150D
Suitable cans	18L, 20LPail cans·Itto cans	
Voltage	AC100V	
Capacity	400W	
Size(mm)	560x560x201 (DxWxH) ※Without insulation cover	
temperature controller	30°C~110°C Variable thermostat	
Power cable	2m With outlet plug	
Safety device	With thermostat·With temperature fuse	
Material	Bottom heater: Aluminum./Insulation cover: Glass cloth+Glass wool	
Weight	About 13kg	About 18kg



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FINE PIPE HEATER

細配管用ヒーター

Temperature at a glance!

WANI heater

Detachable to metal pipes, tubes, etc.

Heater for heating and heat insulation

1 1/8-1 inch Fine pipe heater

Features

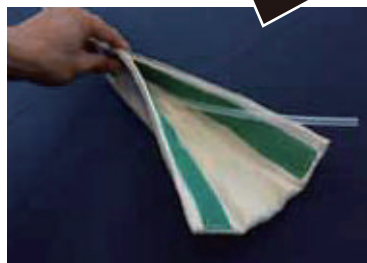
- Easily attach and detach to and from the pipes and tubes.
- Equipped with an insulation material for effective warming
- Can also be mounted in complex shapes.

Temperature drops in the pipe and tube.

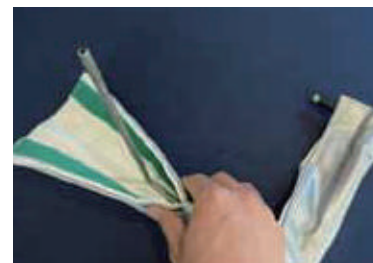
Heat Resistant
150°C/392°F

RoHS2
Compliance

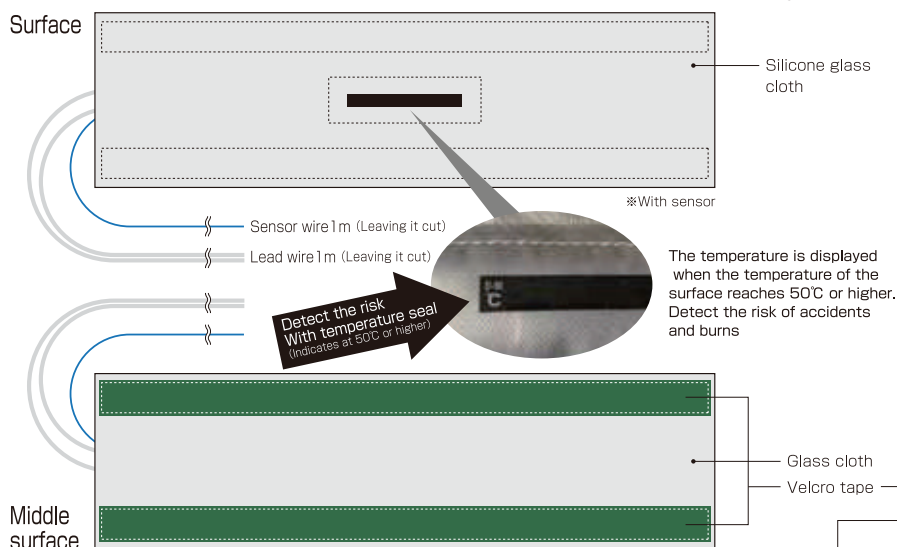
Simply clip
them on
velcro



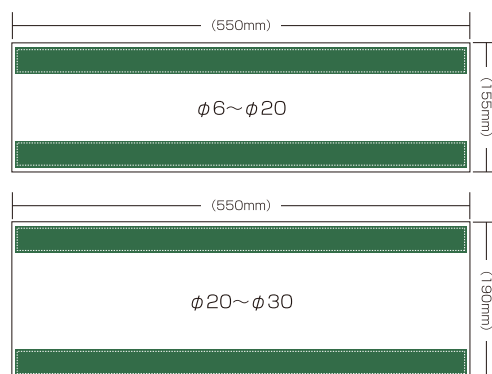
Easy attachment/detachment



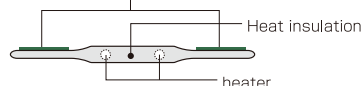
Easily wrap on a flexible L shape



We have two sizes. Choose according to your use.



Cross section



Without sensor

100V rating

Product code	Conformance size	Wattage	size(mm×mm)	Lead wire
WNS-10	(φ6~φ20) 1/8~3/4 inch	10	155×550	1m
WNS-20		20		
WNL-20	(φ20~φ30) 1 inch	20	190×550	
WNL-40		40		

With sensor

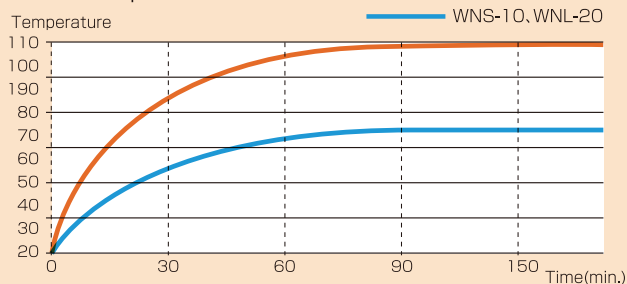
100V rating

Product code	Conformance size	Wattage	size(mm×mm)	Lead wire	
WNS-10-K	(φ6~φ20) 1/8~3/4 inch	10	155×550	1m	1m
WNS-20-K		20			
WNL-20-K	(φ20~φ30) 1 inch	20	190×550		
WNL-40-K		40			

[Precautions for use]

- Do not operate above the rated voltage.
- The product is not waterproof. Avoid usage at a water splashing place.
- Be sure to provide a ground.
- This product is not explosion-proof. Avoid usage in an explosion-proof area.
- Do not touch the main unit while it is energized.
- There is a risk of burns.
- Do not use the product in an atmosphere containing flammable, combustible or corrosive gases.
- Do not disassemble or modify this product.
- Do not pull on the power cable or thermocouple.

Surface temperature in the air



※Measured the heater itself in the air at room temperature.(20°C)
※The surface temperature of the heater changes depending on the operating environment, the material of the heating object, shapes, etc.

Temperature control

Analogue type/Suitable for simple temperature control
(0 to 100°C variable knob type)
Digital type/Suitable for more accurate temperature control
(0 to 999°C variable button type)



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DIGITAL TEMPERATURE CONTROLLER

デジタル温度調節器



monoOne® - 120

[mono wAn]

Utility model registered

This is the subsequent model of MonoOne-100/100T.

- Easy, safe and compact design & easy to use for anyone.
- Supports most sensors(excluding thermistors)
- It makes easier for you to operate the unit when you are seated by attaching the stand base.(as options.)
- With timer which maximum set time is 100 hours. Available to install on the DIN rail. (as options.)
- First in the industry! Also monitoring the temperature of the heating object. It is safely use for operators.

Standard Equipment

- **Monitoring function**(With overheat prevention function)
Measuring the temperature of the heating object while controlling the temperature of the heater. (Monitoring function) It controls the temperature more accurate by checking the two temperatures simultaneously. It can be used safely even if the heating point is away from the controller.
- **Error function**
Even if unpredictable failures such as heater burnout or sensor burnout occur,
The buzzer or the rotating lamp can be used to realize a safe field environment by using the error port.

Specifications

※Parameter settings must be preset.

Model	monoone-120/120T			
Input	Thermocouple(K, J, T, E, R, S, B) External resistance 100Ω or less Platinum resistance temperature detector(Pt100Ω)			
Power supply voltage	AC90~240V(single phase) 50/60Hz			
Output format	SSR(Contactless) Voltage output (Output voltage depends on power supply voltage.)			
Output rating	15A or less *Slight leakage current flows due to SSR output. Consult us if you need the current 0.1A or less.			
Auxiliary output	AC 250V 3A			
Control method	1. PIC control(Heating operation) With auto-tuning 2. ON/OFF control(Heating operation)			
Control constant	Proportional band: 0.1~999.9(°C)/Proportional cycle: 1~10 (secs.) Integration time: 0~999(secs.)/Sensitivity: 0~99.9(°C) Derivative time: 0~999 (secs.)/PV correction: -50.0~50.0(°C)			
Display range	Type	Resolution0.1	Resolution1	Unit
	K	-199.9~999.9	-199~1372	°C
	Pt100	-199.9~650.0	-199~650	°C
	J	-500~999.9	-50~1100	°C
	T	-199.9~400.0	-199~400	°C
	E	-199.9~750.0	-199~750	°C
	R	—	0~1760	°C
	S	—	0~1760	°C
	B	—	0~1800	°C
Measured temperature: 7-segment red LED with a character height of 14.3mm Set temperature: 7-segment green LED with a character height of 10.2mm Monitor display: 7-segment red LED with a character height of 8.0mm Timer display: 7-segment green LED with a character height of 8.0mm OUT lamp: Lights when heater output is on.(Orange LED) ALARM lamp: Lights upon an alarm.(Red LED) AT lamp: Lights during auto-tuning.(Green LED) ON timer: Lights up when you select ON timer.(Orange LED) OFF timer: Lights up when you select OFF timer.(Orange LED)				

Made in Japan

RoHS Compliance

First
in the industry!
Warranty period
5 YEARS!



The timer and the stand are attached to the product in this photo.

Optional Equipment

- **Timer function**
Up to 100 hours, Setting the ON/OFF switch in increments of 1 minute is available. This helps to save your labor time.
- **Designed considering DIN rail**
Available to attach to the DIN rail. It is easy to install on the control panel.
- **Easier to operate the unit by attaching the stand base.**
It is easily viewable at your preferred angle by the 5-step angle adjustment.
- **Power cord and temperature sensor are not included in this temperature controller.**

※Please consult us.

Indicating accuracy	Thermocouple	K,J,T,E	(±0.3% or ±2°C of indication value, whichever is greater) ±1 digit max
		R,S	(±0.3% or ±3°C of indication value, whichever is greater) ±1 digit max
		B	±5% ±1 digit max in the display range of 0 to 400°C
	Platinum resistance temperature detector		(±0.3% or ±2°C of indication value, whichever is greater) ±1 digit max
Sensor error is not included.			
Sampling period	0.5 sec		
Storage for settings	EEPROM		
Short-circuit protection	Built-in 20 A fuse (not replaceable by user)		
Other functions	Error indication/Burnout/Overheat prevention setting/Locking function/Heater burnout alarm/Timer function		
Power consumption	10 VA or less		
Allowable ambient conditions	Temperature: 0 to 40°C Humidity: 35 to 85% rh (no condensation)		
Withstand voltage	1800 VAC for one second (both power supply and output unit)		
Noise resistance	1200 V or more with a pulse width of 50 ns and 1 μS		
Dimensions/weight	165(H)×110(W)×85(D)mm *Excluding projections and brackets Approx. 1.3 kg		
Installation	Desktop/Wall hanging/DIN rail, Mounting plate(Optional)		

Related products

Temperature sensor

- Be sure to read the manual before using the product to insure safe and proper operation.

SPECIAL WEB SITE **monoone.jp**



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DIGITAL TEMPERATURE CONTROLLER

デジタル温度調節器

monoone+B
[mono w'an] plus B

monoone+W
[mono w'an] plus W

Made in Japan

RoHS Compliance



Compatible with 100V/200V

Compatible with 100V micro current

- Sensor is included and ready to use.
- Easy to check the temperature by 2-screen display
- Safety usable by the error display function



Specifications

Product name	monoone+B	monoone+W
Model	mpb20	mpw20
Color	Black	White
Power supply voltage	AC85V-250V(single phase) 50/60Hz	AC85V-125V(single phase) 50/60Hz
Output rating	0.1A-12A (Load resistance)	1mA-0.5A (Load resistance)
Input	Thermocouple(K)	
Output format	Relay	
Control method	ON/OFF control circuit	
Display range	-199℃~999℃	
Indication accuracy	±2℃(-199℃~700℃) ±4℃(+700℃~+999℃)	
Sampling period	0.1 second	
Memorizing the setup values	EEPROM	
Short circuit protection	Built-in Fuse	
Other functions	Error indication/Sensor error detection/Setting to prevent over-temperature rise/Relay welding detection/Relay high-frequency open-close detection/Relay open-close count monitoring	
Power consumption	4VA or less	
Permissible ambient conditions	Temperature:-10~40℃ Humidity:10~85% RH (No condensation)	
Voltage resistance	AC1500V per minute(Both power supply part and output part)	
Noise resistance	Pulse width 50ns, 1000ns/1500V	
Dimensions/Weight	165(V) x 70(W) x 35(D) *Protuberance and mounting bracket are excluded.	
Mounting	Wall hanging/DIN rail(optional)	
Attached sensor	Thermocouple(K) Φ3.2×100L With lead wire 2m With male connector *Consult us if using above 260℃	
Length of power supply cable	Power supply side: 1m(with 100V outlet plug male) Heater side: 1m(with 100V outlet plug female)	

- The DIN rail mounting place is sold separately.
- If the product is used at a voltage other than 100V, replace it with a 200V outlet plug.

Our 12 commitments

- 1 Made in JAPAN**
This is a ThreeHigh policy. It is made in Japan and reliable.
- 2 Reliability and safety**
Handy type, multi-functional and high-functional model specialized in safety.
- 3 Ready to use**
Take it out of the box, connect to the heater, and it is ready to use. Of course, the temperature sensor is attached.
- 4 Display range**
The best in the industry for handy type. Measurable from -199 to 999℃.
- 5 Sensor can be replaced**
You can choose the shape of the sensor to suit your needs.
- 6 Function for simultaneously displaying of set and measured temperature**
The set temperature and the measured temperature are displayed simultaneously.
- 7 Alarm (error) function**
It notified you by sound when an error occurs. You can work safely even in invisible situations.
- 8 Short signal protection**
The unit will never get damaged. The risk of circuit damage due to over-current can be avoided.
- 9 Overheat prevention function**
The heater may lose its control for some reasons. However, it automatically turns off the output if you set the temperature in advance.
- 10 DIN rail compatible**
Consideration for the mounting method. Easily mounted on the control panel.
- 11 RoHS2 compliance**
Environmentally friendly. Also compatible with EU RoHS2 directive.
- 12 Troubleshooting**
We deal with the problem immediately. Traceability managed and we promise our sincere response to the customers. Quality and reliability are our first priority.

Related products



Temperature sensor

- Be sure to read the manual before using the product to insure safe and proper operation.

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DIGITAL TEMPERATURE CONTROLLER

デジタル温度調節器

Find your perfect temperature controller by voltage & capacity!

Selection flowchart

※1 AC85V~125V

※2 AC200V~250V

Voltage ?

DC12V/24V

Please consult us.

AC100V ※1

AC200V ※2

In case of 100V

10W or less

10W or more



mono⁺ne+W

Wattage ? (100V)

0.1W~50W

10W~1200W

10W~1500W



mono⁺ne+W



mono⁺ne+B



mono⁺ne®-120

Wattage ? (200V)

20W~2400W

20W~3000W



mono⁺ne+B



mono⁺ne®-120



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DIGITAL TEMPERATURE CONTROLLER

デジタル温度調節器

monoOne Comparison

Product name	NEW monoone⁺B
Input	Thermocouple(K)
Power supply voltage	AC 85V ~ 250V 50/60Hz
Output format	Relay
Output rating	0.1A ~ 12A(Load resistance)
Control method	ON/OFF control
Display range	−199 ~ 999℃
Indicating accuracy(not including sensor accuracy)	±2℃(−199℃ ~ 700℃), ±4℃(+700℃ ~ +999℃)
Sampling cycle	0.1 second
Short-circuit protection	20A Built-in fuse(not replaceable by user)
Power consumption	4VA or less
Allowable ambient conditions	Temperature:−10~40℃ Humidity: 10~85% r h(No condensation)
Withstand voltage	AC1500V per minute(Both power supply and output unit)
Noise Resistance	Pulse width 50nS, 1500V or more at 1000nS
Auxiliary output	—
Dustproof and waterproof function	Degree of JIS protection Equivalent to IP54 *Excluding power cable drawer, non-cable drawer, and thermocouple connector
Simultaneous setting/measurement temperature display function	○
Monitor temperature display function	—
Timer function	—
Overheat prevention function	○
Lock function	○
Error display function	○
Error function	Alarm
Sensor error detection function	○
Heater burnout alarm function	—
Internal relay error detection function	○
Automatic exhaust heat function	—
DIN rail compatibility	○
5-step stand compatibility	—
RoHS compliance	○
Body color	Black
Dimensions	165 (H) × 70 (W) × 35 (D) mm *Excluding protuberance and mounting brackets
Power cord	With 1m plug
Includes sensor	Thermocouple(K) ϕ3.2 × 100L With lead wire 2m With male connector *Please contact us when used at 260℃ or higher.
Weight	600g
Installation	Wall Mounting/DIN rail(Optional)

NEW monoone⁺W	monoone⁺-120
Thermocouple(K)	Thermocouple(K, J, T, E, R, S, B) <External resistor 100 Ω or less> Platinum resistance thermometer(Pt100Ω)
AC85V~125V(Single phase) 50/60Hz	AC 90 ~ 240V(Single phase) 50/60Hz
Relay	SSR (Contactless) Voltage output<Output voltage depends on power supply voltage.>
1mA ~ 0.5A(Load resistance)	15A or less *Slight leakage current flows due to SSR output. Please contact us when the current value is 0.1 A or less.
ON/OFF control	ON/OFF control PID time division proportion <Heating operation> With auto-tuning
−199 ~ 999℃	※Please refer to its catalog for the details.
±2℃(−199℃ ~ 700℃), ±4℃(+700℃ ~ +999℃)	※Please refer to its catalog for the details.
0.1 second	0.5 second
20A Built-in fuse(not replaceable by user)	20A Built-in fuse(not replaceable by user)
4VA or less	10VA or less
Temperature:−10~40℃ Humidity: 10~85% r h(No condensation)	Temperature:0~40℃ Humidity:35~85% r h(No condensation)
AC1500V per minute(Both power supply and output unit)	AC1800V per AC1800V per second(Both power supply and output unit)
Pulse width 50nS, 1500V or more at 1000nS	Pulse width 50nS, 1200V or more at 1nS
—	AC250V 3A
Degree of JIS protection Equivalent to IP54 *Excluding power cable drawer, non-cable drawer, and thermocouple connector	—
○	○
—	○
—	monoone-120T
○	○
○	○
○	○
Alarm	Indicator lamp
○	○
—	○
○	—
—	—
○	○
—	○
○	○
White	Black
165 (H) × 70 (W) × 35 (D) mm *Excluding protuberance and mounting brackets	166 (H) × 110 (W) × 86 (D) mm *Excluding protuberance and mounting brackets
With 1m plug	Optional
Thermocouple(K) ϕ3.2 × 100L With lead wire 2m With male connector *Please contact us when used at 260℃ or higher.	—
600g	1.3kg
Wall Mounting/DIN rail(Optional)	Table top/Wall mounting/DIN rail(Optional)

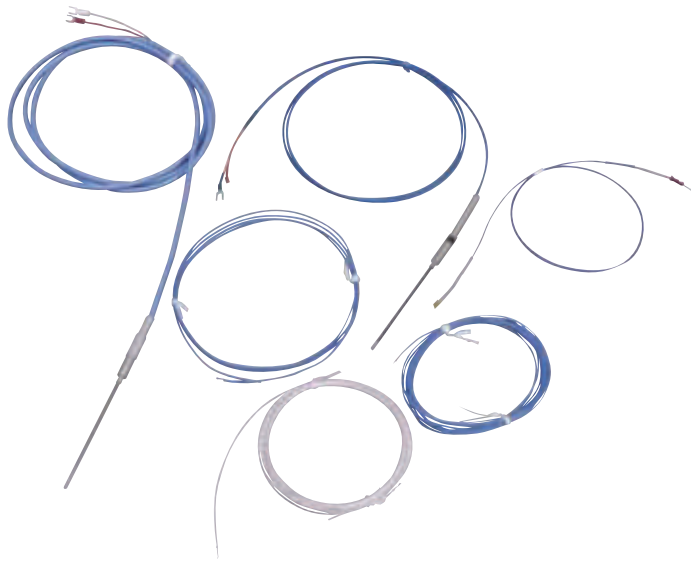




TEMPERATURE SENSOR Type K thermocouple (Some are UL certified.)

温度センサー

Temperature sensors for our digital temperature controller “MonoOne” series.
It is ready to use if your temperature controller supports thermocouple K and Pt100Ω.



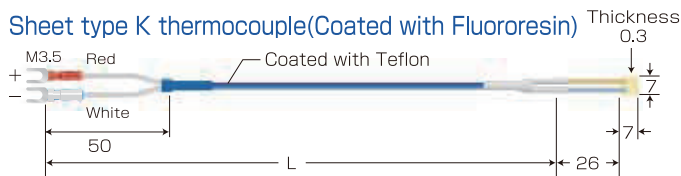
Type K thermocouple

RoHS Compliance

Sheet type K thermocouple

Selection Standard

This is formed of a thermocouple on an insulating sheet, and is suitable for measuring surface temperature.
It is a sheet-like thermocouple that is stuck on the surface of the object to measure surface temperature quickly and accurately.



Normal limit: 200°C Tolerance: Class 2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$)

Product code	L (m)
TH-8297-1	1.0
TH-8297-3	3.0
TH-8297-10	10.0

Normal Limit of temperature sensing section

Outer diameter of sheath ϕ (mm)	Normal Limit $^\circ\text{C}$ (SUS316)
1.0, 1.6, 2.3	650
2.3, 3.2	750

Sheath type K thermocouple

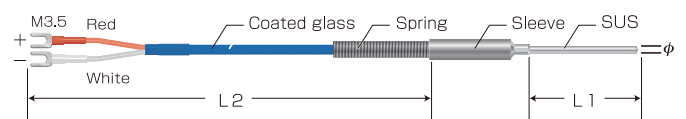
Selection Standard

This is a stainless steel sheath tube filled with inorganic insulator at high pressure through a thermocouple element, and is excellent in sensitivity, vibration resistance, and economical efficiency.

However, the durability of measurement in a high-temperature activated gas atmosphere may be extremely poor.

Please consult us in advance.

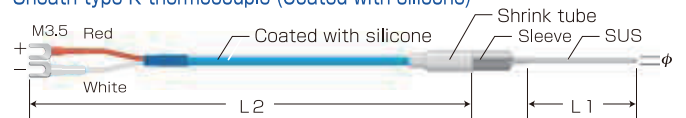
Sheath type K thermocouple (Coated with glass)



Maximum cladding material temperature: 250°C (Sleeve 80°C) Tolerance: Class 2

Product code	Φ (m)	L1 (m)	L2 (m)
TH-8159	3.2	100	1.5
TH-8159-1	3.2	100	3.0
TH-8159-2	3.2	100	5.0
TH-8185	3.2	300	3.0
TH-8182	3.2	500	3.0
TH-8192	3.2	50	3.0
TH-8163	1.6	100	3.0
TH-8163-1	1.6	100	1.5
TH-8196	1.0	100	3.0

Sheath type K thermocouple (Coated with silicone)



Maximum cladding material temperature: 180°C (Sleeve 80°C) Tolerance: Class 2

Product code	Φ (m)	L1 (m)	L2 (m)
TH-8173	2.3	100	2.0
TH-8174	3.2	100	2.0

Sheath type K thermocouple (Coated with Fluororesin)



Maximum cladding material temperature: 260°C (Epoxy resin 150°C) Tolerance: Class 1
Waterproof type

Product code	Φ (m)	L1 (m)	L2 (m)
TH-8100-2	3.2	100	2.0



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TEMPERATURE SENSOR Type K thermocouple (Some are UL certified.)

温度センサー

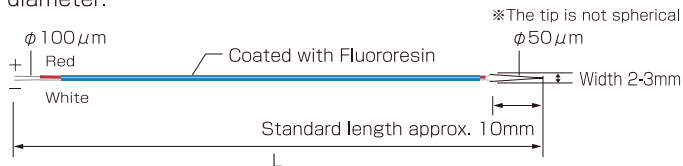
Ultrafine type K thermocouple

Selection Standard

It is suitable for measurement of ultrafine part and gas temperature.

This ultrafine thermocouple with ultra-high-speed response is one of the industry's best in the field.

The tip of the thermocouple is a thermocouple with 50 μm diameter.



Normal limit: 260°C Tolerance: Class2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$)

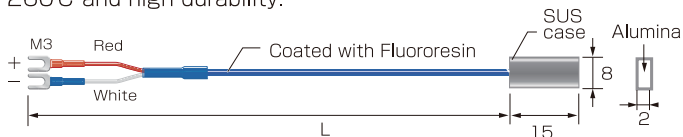
Product code	L(m)
TH-8910-1	1.0

Stick type K thermocouple

Selection Standard

It is recommended if the detection section is planar or flat.

This is a sensor with stable sensing of its heat resistance of 260°C and high durability.



Normal limit: 260°C Tolerance: Class2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$)

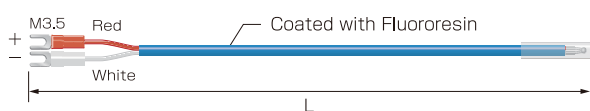
Product code	L(m)
TH-8282	2.0

Mold type K thermocouple

Selection Standard

The tip is molded with resin and is recommended for measurements in liquids.

The sensor with heat resistance of 200°C and waterproofing.



Normal limit: 200°C Tolerance: Class2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$) **Waterproof type**

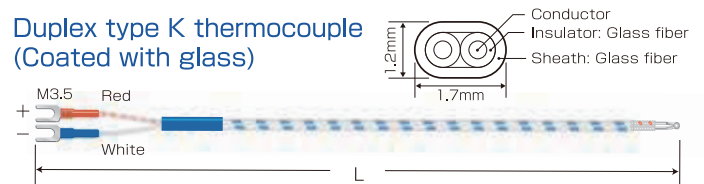
Product code	L(m)
TH-8484-3	3.0

Duplex (tip welding) type K thermocouple

Selection Standard

The duplex type K thermocouple is the one whose thermocouple element wire is coated with Fluororesin or glass. It is used without protective tube.

Duplex type K thermocouple (Coated with glass)



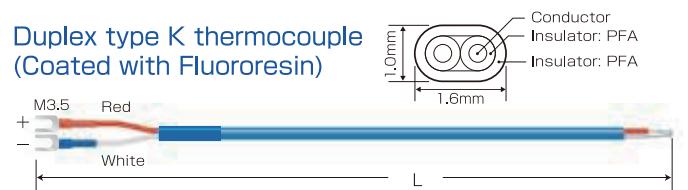
Normal limit: 250°C Tolerance: Class2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$) Wire diameter: 0.32mm

Product code	L(m)
TH-8162-1~TH-8162-20	2,000
TH-8282-2	2.0
TH-8282-3	3.0
TH-8282-5	5.0
TH-8282-10	10.0
TH-8282-20	20.0

Normal limit: 250°C Tolerance: Class1 ($\pm 1.5^\circ\text{C}$ or $\pm 0.4\%$) Wire diameter: 0.32mm

Product code	L(m)
TH-8296-1	1.0
TH-8296-2	2.0
TH-8296-3	3.0
TH-8296-5	5.0
TH-8296-10	10.0
TH-8296-20	20.0

Duplex type K thermocouple (Coated with Fluororesin)



Normal limit: 260°C Tolerance: Class2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$) Wire diameter: 0.32mm

Product code	L(m)
TH-8181-1	1.0
TH-8181-2	2.0
TH-8181-3	3.0
TH-8181-5	5.0
TH-8181-10	10.0
TH-8181-20	20.0



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TEMPERATURE SENSOR Type K thermocouple (Some are UL certified.)

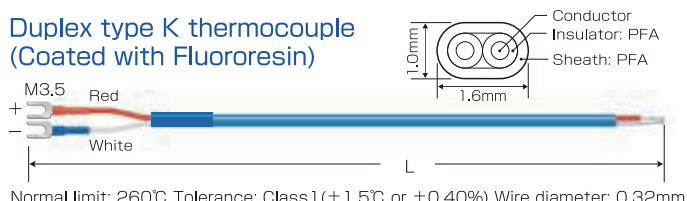
温度センサー

Type K thermocouple

RoHS Compliance

Duplex (tip welding) type K thermocouple

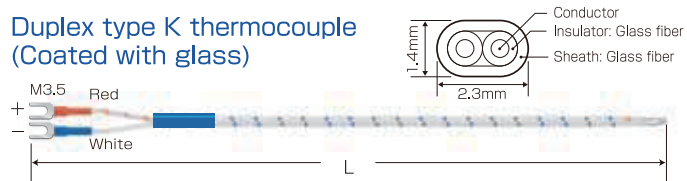
Duplex type K thermocouple (Coated with Fluororesin)



Normal limit: 260°C Tolerance: Class1 ($\pm 1.5^\circ\text{C}$ or $\pm 0.40\%$) Wire diameter: 0.32mm

Product code	L(m)
TH-8391-1	1.0
TH-8391-2	2.0
TH-8391-3	3.0
TH-8391-5	5.0
TH-8391-10	10.0
TH-8391-20	20.0

Duplex type K thermocouple (Coated with glass)



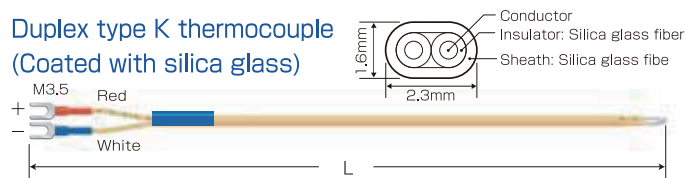
Normal limit: 350°C Tolerance: Class2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$) Wire diameter: 0.32mm

Product code	L(m)
TH-8294-1	1.0
TH-8294-2	2.0
TH-8294-3	3.0
TH-8294-5	5.0
TH-8294-10	10.0
TH-8294-20	20.0

Normal limit: 350°C Tolerance: Class1 ($\pm 1.5^\circ\text{C}$ or $\pm 0.40\%$) Wire diameter: 0.32mm

Product code	L(m)
TH-8398-1	1.0
TH-8398-2	2.0
TH-8398-3	3.0
TH-8398-5	5.0
TH-8398-10	10.0
TH-8398-20	20.0

Duplex type K thermocouple (Coated with silica glass)



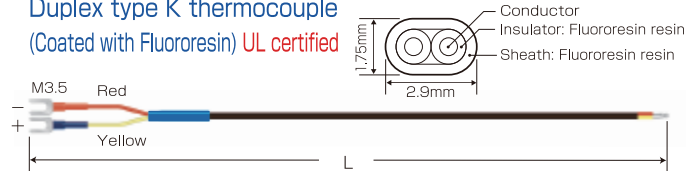
Normal limit: 400°C Tolerance: Class2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$) Wire diameter: 0.32mm

Product code	L(m)
TH-8292-1	1.0
TH-8292-2	2.0
TH-8292-3	3.0
TH-8292-5	5.0
TH-8292-10	10.0
TH-8292-20	20.0

Normal limit: 400°C Tolerance: Class1 ($\pm 1.5^\circ\text{C}$ or $\pm 0.40\%$) Wire diameter: 0.32mm

Product code	L(m)
TH-8396-1	1.0
TH-8396-2	2.0
TH-8396-3	3.0
TH-8396-5	5.0
TH-8396-10	10.0
TH-8396-20	20.0

Duplex type K thermocouple (Coated with Fluororesin) UL certified



Red part is negative due to UL specification.

Normal limit: 200°C Tolerance: Class2 ($\pm 2.5^\circ\text{C}$ or $\pm 0.75\%$) Wire diameter: 0.65mm

Product code	L(m)
TH-8290-1	1.0
TH-8290-2	2.0
TH-8290-3	3.0
TH-8290-5	5.0
TH-8290-10	10.0
TH-8290-20	20.0

Changeable to circular terminal as optional (Extra charge)

Product: Duplex type K thermocouple Please consult us.



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SILICONE SPONGE Sheet/Tube/String square

シリコンスポンジ

Silicone Sponge Sheet

■ Sheet

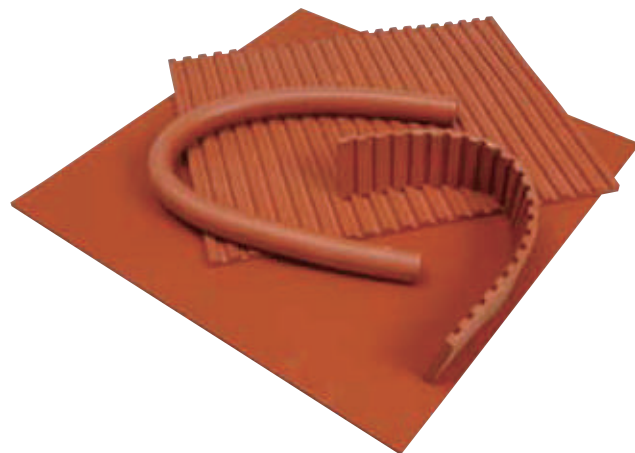


Silicone sponge with double-sided tape.

Heat resistance 200°C

RoHS Compliance

- Can be cut in any shape.
- Excellent in heat insulation and heat retention.
- Heat resistance from -60°C to 200°C.



Selection Standard

Product code	Thickness (mm)	Hardness (°)	Thermal conductivity (W/m·K)	Size (mm×mm)
SS1-1000-1000	1	25	8.3×10^{-2}	1000x1000
SS2-500-500	2	35	7.4×10^{-2}	500x 500
SS2-500-1000				500x1000
SS2-1000-1000				1000x1000
SS2-1000-2000				1000x2000
SS3-500-500	3			500x 500
SS3-500-1000				500x1000
SS3-1000-1000				1000x1000
SS3-1000-2000				1000x2000
SS5-500-500	5			500x 500
SS5-500-1000				500x1000
SS5-1000-1000				1000x1000
SS5-1000-2000				1000x2000
SS8-500-500	8			500x 500
SS10-500-500	10			500x 500
SS15-500-500	15			500x 500
SS20-500-500	20	15	5.0×10^{-2}	500x 500

Consult us for other sizes.

NEW

With double-sided tape release paper



(Custom-made product)

With double-sided tape release paper

Product code	Thickness (mm)	Hardness (°)	Size (mm×mm)
SSP2-500-500	2	35	500x500
SSP3-500-500	3		500x500
SSP5-500-500	5		500x500
SSP8-500-500	8		500x500
SSP10-500-500	10		500x500
SSP15-500-500	15	15	500x500
SSP20-500-500	20		500x500

Consult us for other sizes.

Heat retention

Heat insulator

Antifreezing

Heat-resistant cushioning

Purpose

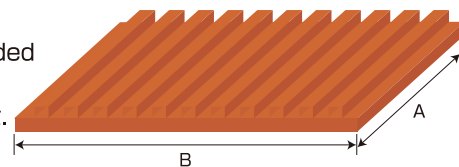
- Various gaskets and packings
- Electronic equipment, electrical component, and automobile parts
- Piping line

◆ This product is developed and manufactured for general industrial use.

◆ If the product is used for medical, food, or other special purposes, check the safety of the product by your company before use.

● Caterpillar

This is recommended for warping around the can and piping.



Selection Standard

Product code	Thickness (mm)	Hardness (°)	Size (mm×mm)
SSK-10-370-450	10	15	370 x 450
SSK-15-400-550	15		400 x 550



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SILICONE SPONGE Sheet/Tube/String square

シリコンスポンジ

NEW

Flame retardant silicone sponge sheet

RoHS Compliance

Silicone sponge sheet with flame retardant UL94V-0

[Features]

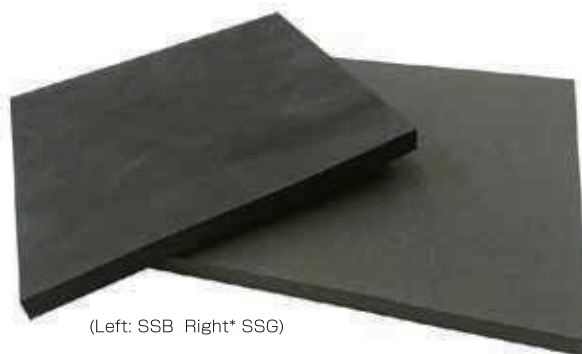
- The SSG type is a UL-compliant product with a heat resistance of 200°C. (Not certified.)
- The SSB type is a UL-certified product with a heat resistance of 150°C.

Selection Standard

Product code	Heat resistant (°C)	Hardness (°)	Color	Flame retardant	Thickness (mm)	Size (mm×mm)
SSG-1-1000-1000	200	15	Dark gray	V-O Conformance	1	1000×1000
SSG-3-1000-1000					3	
SSB-1-1000-1000	150	15	Black	V-O Certification	1	
SSB-3-1000-1000					3	

Flame retardance		SSG Type	SSB Type
Normal physical properties	Apparent density(g/cm3)	0.50	0.30
	Tensile strength(MPa)	1.2	0.4
	Stretch(%)	375	150
	Tearing strength(N/mm)	3.9	1.1
Heat-resistant	Change in Tensile strength (%)	-42	-12
	Elongation(%)	+50	+33
	Change in hardness(point)	+15	+1
	Test condition	180°C×72H	120°C×72H
Resistance to ozone		No abnormality	
Fire retardant test		V-O Conformance	V-O Certification

(Numerical values in the table are examples of characteristics and not standard values.)



(Left: SSB Right* SSG)

SSG type

SSB type

Safety Measures

Do not handle until all safety precautions have been read and understood.

Appropriate measures such as grounding must be taken when using flammable organic solvents because static electricity may be generated when moving.

Dust and high temperature gases may be generated during grinding or cutting, and it may irritate eyes, nose, respiratory apparatus, or skin. Avoid abnormal temperature rises during machining and ensure proper exhaust and ventilation by using a local exhaust ventilation system.

First Aid

In case of fire or combustion, extinguish the fire by using water infection, powder fire extinguisher, carbon dioxide and dry sand.

Wear appropriate protective clothing as toxic gases may be generated.

Although there is no information on any special effects on the human body, wash the parts touched as necessary with soap.

Storage

Avoid direct sunlight, water leakage, high temperatures, and outdoor storage, and store in a cool and dark place. Do not bend or deform the cable.

It is classified as a specified combustible substance when the storage quantity exceeds 3000 kg.

Control it in accordance with the Fire Defense Law if the product is handled in excess of the specified quantity.

Disposal

Dispose of the product as industrial waste in a safe facility such as a waste incinerator approved by law.

Precautions for Use

This product is developed and manufactured for general industrial use.

If the product is used for medical, food, or other special purposes, check the safety of the product by your company before use.

SSB type

Signal words

Danger

Hazard statement

Suspected of carcinogenicity

Organ damage due to prolonged or repeated exposure



SSG type

[Substances to be notified] Zinc oxide Mineral oil Silica Titanium oxide Iron oxide

SSB type

[Substances to be notified] Zinc oxide Carbon black Mineral oil Silica Zinc stearate



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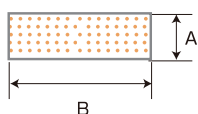


SILICONE SPONGE Sheet/Tube/String square

シリコンスポンジ

Silicone Sponge String Square

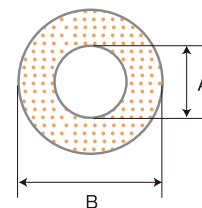
Selection Standard



Product code	Hardness (°)	Size (A×B) (mm×mm)
SH3-30-3	20	3 x30 3m
SH3-30-10		3 x30 10m
SH3-30-50		3 x30 50m
SH5-30-3		5 x30 3m
SH5-30-10		5 x30 10m
SH5-30-50		5 x30 50m
SH10-30-3		10x30 3m
SH10-30-10		10x30 10m
SH10-30-50		10x30 50m
SH15-30-3		15x30 3m
SH15-30-10		15x30 10m
SH15-30-50		15x30 50m

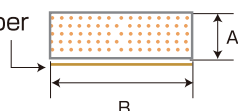
Silicone Sponge Tube

Selection Standard



Product code	Hardness (°)	Size (A×B) (mm×mm)
ST10-20-1	20	φ10 x φ20 1m
ST10-25-1		φ10 x φ25 1m
ST15-25-1		φ15 x φ25 1m
ST20-30-1		φ20 x φ30 1m
ST25-45-1		φ25 x φ45 1m
ST10-20-3		φ10 x φ20 3m
ST10-25-3		φ10 x φ25 3m
ST15-25-3		φ15 x φ25 3m
ST20-30-3		φ20 x φ30 3m
ST25-45-3		φ25 x φ45 3m

◆With double-sided tape release paper



Selection Standard

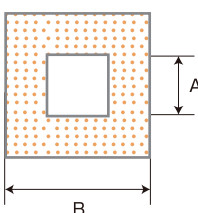
Product code	Hardness (°)	Size (A×B) (mm×mm)
SHP3-30-1	20	3x30 1m
SHP5-30-1		5x30 1m
SHP10-30-1		10x30 1m
SHP15-30-1		15x30 1m

Other lineup (Custom-made product)

Product code	Hardness (°)	Size (A×B) (mm×mm)
ST5 - 15 - 50	20	φ 5 x φ15
ST5 - 20 - 50		φ 5 x φ20
ST10 - 20 - 50		φ10 x φ20
ST10 - 25 - 30		φ10 x φ25
ST10 - 30 - 30		φ10 x φ30
ST10 - 35 - 25		φ10 x φ35
ST15 - 25 - 30		φ15 x φ25
ST15 - 30 - 30		φ15 x φ30
ST15 - 35 - 25		φ15 x φ35
ST15 - 40 - 25		φ15 x φ40
ST15 - 45 - 20		φ15 x φ45
ST20 - 30 - 30		φ20 x φ30
ST20 - 35 - 25		φ20 x φ35
ST20 - 40 - 25		φ20 x φ40
ST20 - 45 - 20		φ20 x φ45
ST25 - 40 - 25		φ25 x φ40
ST25 - 45 - 20		φ25 x φ45

Silicone Sponge Square Tube

Selection Standard



Product code	Hardness (°)	Size (A×B) (mm×mm)
SK6-10-3	20	6x10 3m
SK6-10-10		6x10 10m
SK6-10-50		6x10 50m
SK12-20-3		12x20 3m
SK12-20-10		12x20 10m
SK12-20-50		12x20 50m



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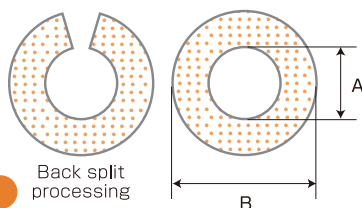
SILICONE SPONGE

シリコンスポンジ

Tube type(Round/Square)/Others



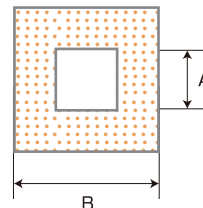
Silicone Sponge Round Tube



Selection Standard

Product code	Hardness (°)	Size (mm x mm)	Back split processing
ST10-20-1	20	φ 10 × φ 20 1m	No
ST10-25-1		φ 10 × φ 25 1m	
ST15-25-1		φ 15 × φ 25 1m	
ST20-30-1		φ 20 × φ 30 1m	
ST25-45-1		φ 25 × φ 45 1m	
ST10-20-3		φ 10 × φ 20 3m	
ST10-25-3		φ 10 × φ 25 3m	
ST15-25-3		φ 15 × φ 25 3m	
ST20-30-3		φ 20 × φ 30 3m	
ST25-45-3		φ 25 × φ 45 3m	
ST10-20-1-SL		φ 10 × φ 20 1m	Yes
ST10-25-1-SL		φ 10 × φ 25 1m	
ST15-25-1-SL		φ 15 × φ 25 1m	
ST20-30-1-SL		φ 20 × φ 30 1m	
ST25-45-1-SL		φ 25 × φ 45 1m	
ST10-20-3-SL		φ 10 × φ 20 3m	
ST10-25-3-SL		φ 10 × φ 25 3m	
ST15-25-3-SL		φ 15 × φ 25 3m	
ST20-30-3-SL		φ 20 × φ 30 3m	
ST25-45-3-SL		φ 25 × φ 45 3m	

Silicone Sponge Square Tube



Selection Standard

Product code	Hardness (°)	Size (mm x mm)
SK6-10-3	20	6 × 10 3m
SK6-10-10		6 × 10 10m
SK6-10-50		6 × 10 50m
SK12-20-3		12 × 20 3m
SK12-20-10		12 × 20 10m
SK12-20-50		12 × 20 50m

Other Lineup (Custom-made product)

Product code	Hardness (°)	Size (mm x mm)	Length per roll (m)
ST5-15-50	20	φ 5 × φ 15	50m
ST5-20-50		φ 5 × φ 20	50m
ST10-20-50		φ 10 × φ 20	50m
ST10-25-30		φ 10 × φ 25	30m
ST10-30-30		φ 10 × φ 30	30m
ST10-35-25		φ 10 × φ 35	25m
ST15-25-30		φ 15 × φ 25	30m
ST15-30-30		φ 15 × φ 30	30m
ST15-35-25		φ 15 × φ 35	25m
ST15-40-25		φ 15 × φ 40	25m
ST15-45-20		φ 15 × φ 45	20m
ST20-30-30		φ 20 × φ 30	30m
ST20-35-25		φ 20 × φ 35	25m
ST20-40-25		φ 20 × φ 40	25m
ST20-45-20		φ 20 × φ 45	20m
ST25-40-25		φ 25 × φ 40	25m
ST25-45-20		φ 25 × φ 45	20m



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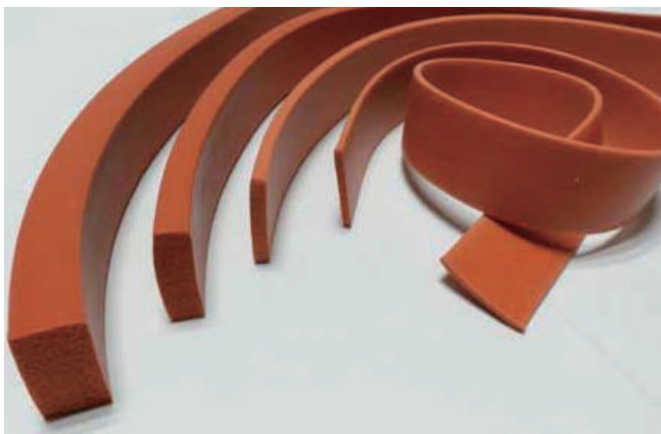




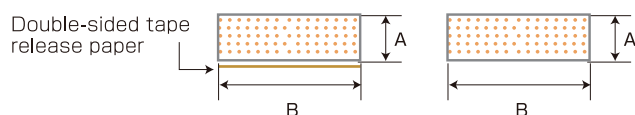
SILICONE SPONGE

シリコンスポンジ

Square strips/Tube type(Round/Square)



Silicone Sponge String Square (Bengal red)



Selection Standard

Product code	Hardness (°)	Size (mm x mm)	Double-sided tape processing
SH3-30-3	20	3×30 3m	No
SH3-30-10		3×30 10m	
SH3-30-50		3×30 50m	
SH5-30-3		5×30 3m	
SH5-30-10		5×30 10m	
SH5-30-50		5×30 50m	
SH10-30-3		10×30 3m	
SH10-30-10		10×30 10m	
SH10-30-50		10×30 50m	
SH15-30-3		15×30 3m	
SH15-30-10		15×30 10m	
SH15-30-50		15×30 50m	
SHP3-30-1	20	3×30 1m	Yes
SHP5-30-1		5×30 1m	
SHP10-30-1		10×30 1m	
SHP15-30-1		15×30 1m	

Silicone Sponge String Square (White)

Selection Standard

Product code	Hardness (°)	Size (mm x mm)	Double-sided tape processing
SHW3-30-3	20	3×30 3m	No
SHW3-30-10		3×30 10m	
SHW3-30-50		3×30 50m	
SHWP3-30-1		3×30 1m	Yes



Silicone Sponge String Square (Dark gray)

Selection Standard

Product code	Hardness (°)	Size (mm x mm)	Double-sided tape processing
SHG3-30-3	20	3×30 3m	No
SHG3-30-10		3×30 10m	
SHG3-30-50		3×30 50m	
SHGP3-30-1		3×30 1m	Yes



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SPIRAL REVOLUTION

Heater for piping

ほっ管

Hot tube



Spiral and easy to roll!
Significant reduction in working time



Easy! Ready to use!
No need for troublesome wiring



Safe! With temperature controller
Keep the heater at a constant temperature

Inside the pipe

- Anti-freezing
- Prevention of temperature drop
- Prevention of condensation

Heater-winding operation time is about **1** minute!

※For the case that the heater length is 1m

Start!



A flexible and elastic heater.

Start winding



It can also be attached to straight and elbows.

Winding up



The spiral shape makes it easy to wind.

Complete!



Since there is no need for temporary fixing, the winding time can be shortened.



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