RHE Heating Rail

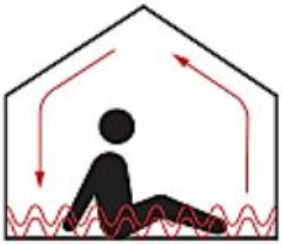
We are the originator of RHE heating elements that has a global technical ability having passed ove years of clinical testing by developing a RHE heatingelement heating system, and are producing and exporting them

High-tech ondol system using far infrared rays through the RHE system heating

"Ondol culture containing the wisdom of the old ancestors"

The ondol has accounted for a very important part of life for our ancestors. If your body is drowsy, aching or feeling pains, you have warmed your body in the warm spot on the floor or covered your body with a blanket to induce perspiration. However, nowadays as this ondol culture is disappearing due to a modulation of reckles life spaces due to the invasion of the lifestyle of the western civilization, there has appeared a high-tech ondol using far infrared rays from the RHE system that can give a physical treatment effect on health by reproducing the ondol culture of our old ancestors with a cutting-edge science and technology. The RHE system heating has reached today by succeeding in the joint development with Japan over 20 years and fighting the trials and errors over several years.

Far infrared radiant heat



Convective heat

Features of the RHE system heating

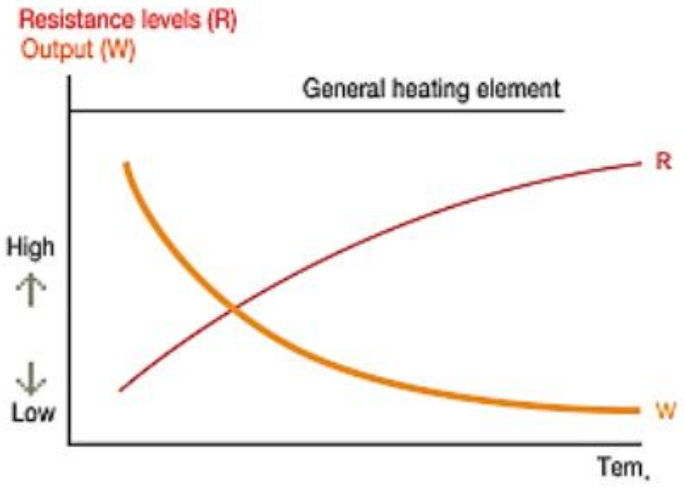
1. The RHE system heating is an economical heating system that can replace the oil heating at the era of high oil price
2. This provides a uniform distribution of temperature to heat the surface of the ondol uniformly.
3. This has good durability to cause no disconnection or damage and to be used semi-eternally.
4. This is of a power-saving type that minimizes the power consumption to be very economical.
5. This makes assurance of stability doubly sure to remove the risk of fires or safety accidents.
6. This radiates far infrared rays of 5.6㎛ ~ 1,000㎛ wavelength that affect the molecular motion.
7. This always radiates far infrared rays of 8㎛ ~ 14㎛ or more wavelength that benefit our health and body to help the metabolism of our body.
8. This has a self temperature control function that controls the memorized maximum temperature by the system.
9. This is not a nichrome heating wire heater to cause no pollution of electromagnetic waves.

Operation principle of the RHE system heating

The heating element made of a mixture of conductive carbon and resin, new materials, expands thermally as the temperature increases to increase the distance from the conductive carbon to increase the electric resistance value to reduce the heating value, and on the contrary, if the heating value decreases, then the distance from the conductive carbon becomes shorter and thicker to reduce the electric resistance value to increase the heating value. This phenomenon is called a magnetic control function, so this is a very economical heating system by maintaining a constant temperature with minimum electric power through the continuous performance of this motion.

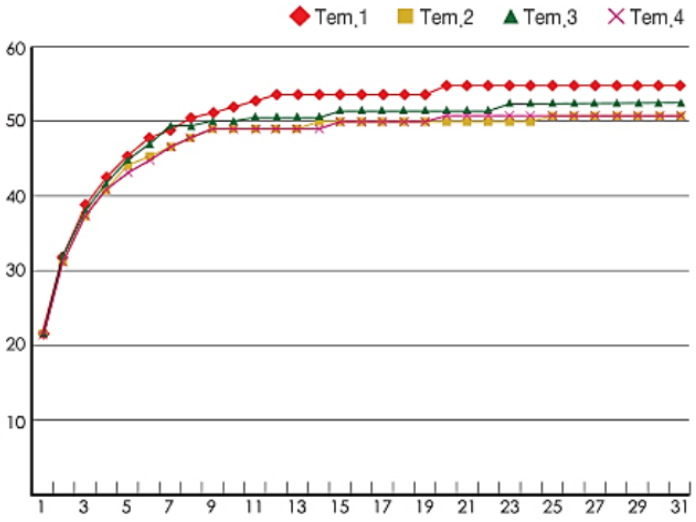
Advantage of the RHE heating element

- **Stability** - The temperature doesn' t increase beyond 60℃
- **Health** - Emission of a large amount of far infrared rays as much as 90.6%
- **Economic efficiency** - Reduction of electricity rates by 30~40% compared to other products because of a magnetic temperature control(Low power consumption)



RHE heating element Electric power effect

	RHE 1						
Time	Tem.1	Tem.2	Tem.3	Tem.4	Electric current	Electric	Change
Initial	12	12	12	12	73	16.1	0.0
1	23	23	23	23	62	13.6	15.1
2	32	31	32	31	54	11.9	26.0
3	39	37	38	37	50	11.0	31.5
4	43	41	42	41	48	10.6	34.2
5	46	44	45	43	47	10.3	35.6
6	48	45	47	45	45	9.9	38.4
7	49	47	49	47	45	9.9	38.4
8	51	48	49	48	44	9.9	39.7
9	51	49	50	49	44	9.7	40.0
10	52	49	50	49	44	9.7	40.0
11	53	49	51	49	44	9.7	40.0
12	53	49	51	49	44	9.7	40.0
13	54	49	51	49	44	9.7	40.0



RHE Heating Rail Spec

Model	Power Consumption	Size	Weight
RHE-330	200~500 W/3.3m^2	Carbon bar : 830mm x 5mm Product : 830mm x 50M/Roll BOX : 920mm x 450mm x 400mm	22kg/Box

RHE heating element Electric power comparison table

When operated for 7 hours on a 10 pyeong area, as of March 2014.

Classification	Energy price	Consumption (3.3m^2)	Daily consumption	Monthly consumption	Automation ratio (30%)	Heating cost	Comparison index
RHE	86.5won/kwh	0.36kw	25.2kw	756kw	529kw	45,758won	100
Oil boiler	1,450won/L	0.086L	6.02L	180.6L	126.5L	183,425won	400
Gas boiler	940won/m^2	0.075m^3	5.25m^2	157.5m^3	110.3m^3	103,719won	226
Film heating	86.5won/kwh	0.06kwh	42kw	1,260kw	882kw	76,293won	166

※ The RHE heating element consumes 0.49kw power initially and 0.36kw power in 30 minutes after operation, a reduced power.

Specifications of Heating Rail

Certifications CE, GOST, ISO9001 / ISO14001

USA / JAPAN / RUSSIA / KOREA Patent

The Introduction of Manufacturer

G Touch Co., Ltd. is the Korean electric under-floor heating material manufacturer. They developed world widely unique heating rail in basis of their outstanding technologies through continuous 7 years of researches. Heating rail not only acquired various patents in USA, Japan, Russia, China and Korea but also was selected as superior Korean government procurement goods. So, heating rail has been providing government offices and Korea military organizations since 2009.

Heating rail applied advanced nanotechnology 'PTC', so, it shows higher energy efficiency and safety.

Moreover, heating rail uses double insulation electric wire therefore it gives good solution about waterproof – which is the main problem of previous under-floor heating materials.

Heating rail is easy to install and emits far infrared ray doesn't nearly cause electromagnetic wave using carbon compound.

What is PTC(Positive Temperature Coefficient)?

PTC(Positive Temperature Coefficient) characteristic was discovered by American doctor Herman in 1950's. It is the phenomenon even though the ambient temperature increases, but the calorific power decreases by certain proportion mechanically.

PTC heating rail does not use any metallic heating elements like Nickel-Chrome line, it is made of nano-compound which is made of mixture of carbon - conductive materials and polyethylene resins have characteristic that is easily inflated and shrunken by heat.

So, when the temperature increases in one area of heating rail, the polyethylene resins inflate. It causes increase of electric resistance of heating rail, so electricity consumption decreases. In addition to that, it is very effective to prevent partial overheating. In case of heating rail, it can't generate over 70 Celsius degree.

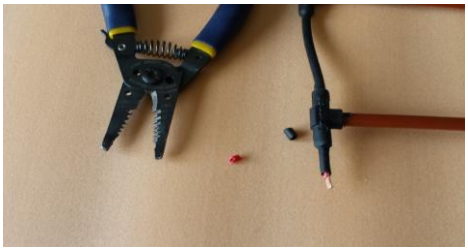
Heating rail generates more heat when the temperature is low, whereas, it produces less heat in hot temperature. Therefore, it is not only safe and but also consumes less electricity (energy saving effect).

The temperatures of a room are different following its circumstance due to differences of lightening, humidity and insulation. But, the PTC effect of heating rail means that every section of heating rail acts as its own thermostat. So every part of the floor is always maintained at the even temperature with the minimum use of energy. Such an intelligent function heating rail makes heating rail the most efficient electrical heating system.

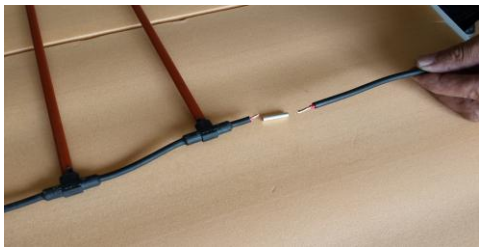
Specifications of Heating Rail

Product Name Heating Rail
Using Voltage AC 220~230 Voltage (50~60Hz)
Usage Under-floor Heating / Agricultural Facilities Electricity
Consumption 150~100watt per meter (from 10℃ ~ 65℃)
Maximum Maintaining Temperature 65℃
Materials Outer Jacket : Polypropylene
Heating Stick : Compound of Carbon & Polypropylene
Far Infrared Ray Emission Rate 90.06%

Installation Guide



1.Connection preparation



2.Double insulated el. wire

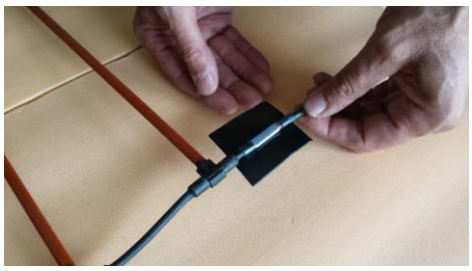
3.Sleeve and shrinkage tube

4.Sleeve crimping

5.Connection

6.Shrinkage tube

7.Heating the shrinkage tube



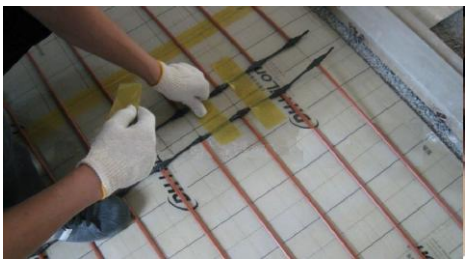
8.Special insulation

9.Bitumen insulated connection

10.Insulating the end

11.Heating rail

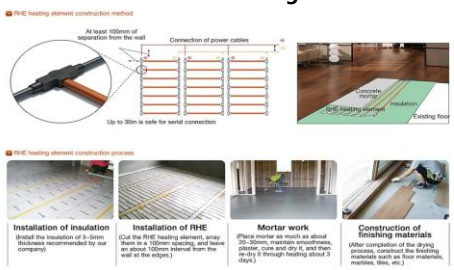
12.Heating rail



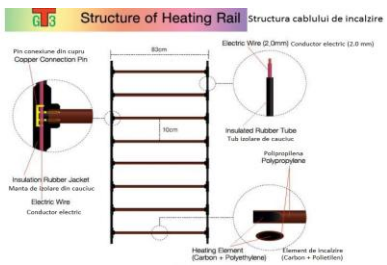
13. Installation of the heating rail

14.The floor

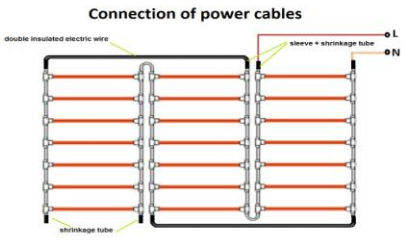
15.Mortar work



16.Heating rail installation



17.Structure of Heating Rail



18.Connection of power cables