THE PTC-HEATING ELEMENT

In one function:
- heating
- control
- safety

Principles of function:

The main advantage of PTC-heating elements is its unique temperature-resistance characteristic. The conventional components for temperature control and thermal safety are no longer required.

The high duty PTC-elements show an extremely positive degree of electrical resistance related to temperature (see figure). This gives the term PTC (Positive Temperature Coefficient) to give an operational pass mark in the diagram range of the characteristic curve. Due to the high resistance, the resulting high heat outputs are within this characteristic.

The self-regulating feature controls the output of the PTC-heating elements based on the required temperature. This allows a very exact temperature control of the element to be forecast.

For the required operating temperatures, the output depends on the heat transfer of the PTC.

Construction:

PTCs are made from doped, polycrystalline ceramics with bariumtitanate as the basic component. The usual PTCs have a flat shape. The large interfacing surfaces (of the PtCs) are metal coated. The metal electrodes placed on these surfaces allow the current transfer to the PTC and take, at the same time, heat from the PTC elements.

The assemblies are embedded in an insulation compound with good heat transfer and electrical insulating properties.

Application:

PTC-heating elements are used in cases where heating, excess temperature protection and other controls and regulating components have to be fitted in a small space. Very often this solution proves the most economic.

Advantages:

- compact heating elements with high power density and operational reliability
- low weight - small air resistance
- self-regulating, safe temperature limitation of the heater’s surface temperature in operation and failure, without additional excess temperature protection
- high geometric stability by combining against components in compression/extension temperature protection switches etc.
- long life - no maintenance needed
- EMC / ESD proved
- without glowing parts, without fire risk

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Optimal operating range of a PTC-heating element
We supply large companies all over the world with state-of-the-art heating technology. These customers of course expect first-class quality in high quantity. For the harmonization of quality there are norms such as TS 16949. We comply with and are certified to this norm. Yet more important than this is the inner commitment to continuous improvement, in order to provide optimal quality and process reliability. We achieve this quality 150,000 times a day on our most modern production lines.

CUSTOMER FOCUS
Eichenauer is a leader in over 45 countries in Europe, Asia, North and South America as well as in Australia. Whatever your language is, we speak your language. Our local representatives have the technical ability to assist you. Our manufacturing sites are situated where they are most needed: in Germany, the Czech Republic and the USA.

QUALITY BY THE MILLION
Our special expertise: The development, manufacture and sales of heating elements for domestic appliances, automation and various industrial applications. Eichenauer Heizelemente - a resourceful and reliable partner.

A company at the forefront of technology welcoming the challenge of innovation, succeeding consistently over 75 years. Over 100 patents applied and registered design ideas reflect the company's position as leader in the field of heating technology.

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We are active in over 45 countries in Europe, Asia, North and South America as well as in Australia. With our many sales offices worldwide, we are nearby, wherever you are. Our local representatives have the technical ability to assist you.

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We supply large companies all over the world with state-of-the-art heating technology. These customers of course expect first-class quality in high quantity. For the harmonization of quality there are norms such as TS 16949. We comply with and are certified to this norm. Yet more important than this is the inner commitment to continuous improvement, in order to provide optimal quality and process reliability. We achieve this quality 150,000 times a day on our most modern production lines.

CUSTOMER FOCUS

Eichenauer is active in over 45 countries in Europe, Asia, North and South America, as well as in Australia, India, and South Africa. We are nearby, wherever you are. We speak your language!

Our local representatives have the technical ability to assist you.

Our manufacturing sites are situated where they are most needed: in Germany, the Czech Republic and the USA.

QUALITY BY THE MILLION

Our special expertise: the development, manufacture and sales of electric heating elements for domestic appliances, automation and various industrial applications. Eichenauer Heizelemente - a resourceful and reliable partner.

A company at the forefront of technology embracing the challenge of innovation successfully for over 75 years. Over 180 patents applied and registered design, new ideas reflect the company’s position as leader in the field of heating technology.

USE OUR YEARS OF EXPERTISE TO YOUR ADVANTAGE

Our teams work in close communication with all departments. Each project is handled in a structured and reliable manner. The quality of our products is our top priority. We are committed to customer satisfaction.

We supply products worldwide through our own sales offices and international partners.
THE PTC-HEATING ELEMENT

In one function:
- heating
- control
- safety

Principles of function:
The main advantage of PTC-heating elements is its unique temperature-resistance characteristic. The conventional components for temperature control and thermal safety are no longer required.

The high duty PTC-elements show an extremely positive degree of electrical resistance related to temperature (see figure). This gives the name PTC = Positive Temperature Coefficient. No additional components have to give an operational pass mark in the thermal resistance of the PT-elements. Due to the thermal expansion of the resistance the output varies within the characteristic.

The self-regulating feature controls the output of the PT-elements based on the required temperature. This allows a very exact temperature control of the material to be heated. The required operating temperature, the output depends on the heat transfer of the PTC.

Construction:
PTCs are made from doped, polycrystalline ceramics with bariumtitanate as the basic component. The usual PTCs have a flat shape. The large interfacing surfaces are metal coated.

For the required operating temperature, the output depends on the heat transfer of the PTC.

Advantages:
- compact heating element with high power density and operational reliability
- low weight - small air resistance
- self-regulating, safe temperature limitation of the heater – surface temperature in operation and failure without additional excess temperature protection
- high powers and也因此 compact design components as controllers/excess temperature protection switches etc.
- long lifetime - no maintenance needed
- EMC / ESD proved
- without glowing parts, without fire risk

Optimal operating range of a PTC-heating element

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Principles of function:

The main advantage of PTC-heating elements is its unique temperature-resistance characteristic. The conventional components for temperature control and thermal safety are no longer required.

The high duty PTC-elements show an extremely positive degree of electrical resistance related to temperature (see figure). This gives the name PTC, Positive Temperature Coefficient. This unique resistance characteristic allows to give an operational pass mark in the high duty range of this kind of components. Due to the positive resistance characteristic there is no output from the PTC-elements.

The metal electrodes placed on these surfaces draw the current to the PTC and take at the same time, heat from the PTC elements.

The assemblies are embedded in an insulation compound with good thermal and electrical insulating properties.

Application:

PTC-heating elements are used in electrical-heating, excess temperature protection and other controls and regulating components. This solution often proves the most economic.

Advantages:

- compact heating elements with high power density and operational reliability
- low weight - small air resistance
- self-regulating, safe temperature limitation of the heater’s surface temperature in operation and failure, without additional excess temperature protection
- high surge capacity due to conducting wire components, as control/over temperature protection switches etc.
- long life - no maintenance needed
- EMC / ESD proved
- without glowing parts, without fire risk

The optimal operating range of a PTC-heating element is shown in the figure.

Construction:

PTCs are made from doped, polycrystalline ceramics with barium titanate as the base component. The main PTCs are flat, thin elements. The large interfacing surfaces are metal coated. The metal electrodes placed on these surfaces draw the current to the PTC and take, at the same time, heat from the PTC elements. The assemblies are embedded in an insulation compound with good thermal and electrical insulating properties.