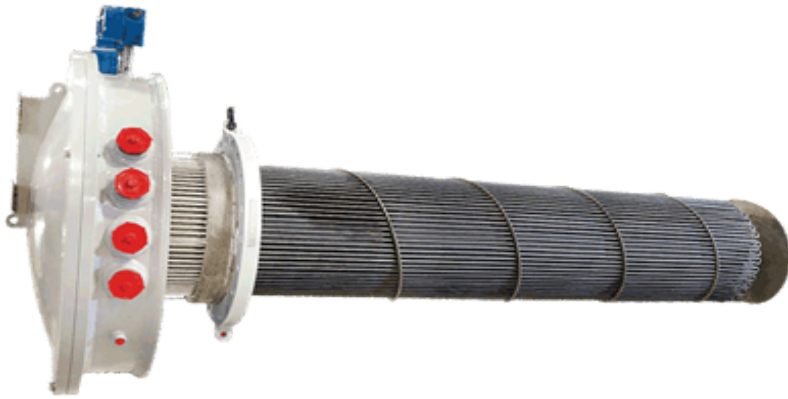


# Why Did This Heater Fail and Troubleshooting Corrections

By: - March 14, 2022



(abcimg://HELIMAX%20Ultra-

Efficient%20Heat%20Exchanger)

Even after following instructions correctly and checking and rechecking the Watlow® installation manual, sometimes the flip of a switch does not activate an electric heater. In these cases, troubleshooting the problem can often lead to the most straightforward solutions to properly start a heater.

When trying to assess heater failure, take stock of these troubleshooting questions that can help determine the immediate cause of the problem.

## Is the Heater Connected and Installed Correctly?

Is the heater plugged in and connected correctly? This is the easiest fix for a non-working heater. Plugs can be loosened or disconnected during final checks or while ensuring the parts are all in the right places and deciphering the instructions.

Make sure that there are no gaps between the heater and the part to which the heater is installed. Also, check that the heater covers the part as expected, and there is good heater-to-part contact.

Ensure that power is connected to the heater and check the cord to make sure that it has not suffered damage. Confirm that proper voltage is being applied to the heater. If the voltage is too high or too low, the heater will not produce heat as expected.

Meanwhile, inspect the heater for physical damage that could have occurred during installation. The number one cause of heater failure is a strain on the internal element wire that occurs during installation in a tight environment.

# Check the Heater and its Surroundings

After checking connections to the heater and for damage to the body, verify the heater surroundings are not contributing to heater performance failure.

## What does the surrounding environment look like?

The area around the heater could impact how it operates. Are there any heat sources nearby that could affect how the heater performs? Are there any adjacent heat sinks, such as unheated lines or fans/vents that can adversely affect heater performance?

By verifying that the environment around the heater is optimal to the heater's performance, you can minimize performance failure.

## What does the heater look like?

If there is damage to the body of the heater, such as a discolored heater mat or a baked-out/brittle mat, this may have occurred due to overheating. Overheating can be caused by several factors such as insufficient heater-to-part contact, inadequate temperature control or adjacent heat sources.

## Dielectric failure

**In layman's terms, a dielectric failure occurs when the heater mat breaks down allowing electricity to travel from the heater circuit to the metal part being heated.**

There are many causes that can lead to dielectric failure but two of the main causes are: a brittle heater mat caused by overheating, and physical damage to the heater mat due to cuts or abrasions.

## Do Other Heaters Have the Same or Similar Issues?

If you have multiple Watlow heaters that are the same part number, verify that all of those heaters meet the specification requirements and are functioning properly. If similar heaters meet the specifications but are also malfunctioning, an installation or performance issue could be the cause.

## Do I Have the Proper Heater?

If your heater is not producing proper heat for your application, double-check that you have the correct heater(s) installed and connected.

Confirm with your Watlow representative that your heater is the correct solution for your application.

# How to Avoid Failure Issues

Many of these failure issues result from improper installation or an improper location for the heater.

Installation in dark, confined areas with low visibility can lead to twisting and bending of the heater during installation that can affect its ability to work. Using tools to aid in installation can sever wires or penetrate the body of the heater resulting in a damaged or open electrical circuit. These electrical connection issues can cause a heater to stop working or overheat.

Follow your Watlow installation manual and double-check that the space around the unit adheres to those instructions.

In addition, installing a heater in a performance inhibiting environment can change how a heater operates. Before starting the heater, check areas around it to ensure that the environment is safe for the heater to do its job.