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# MISTAKES MADE WHEN OPTIMISING MACHINE PERFORMANCE



*Power Control Made Simple*



**Did you know that machine downtime costs UK manufacturers more than £180bn every year according to a new study by Oneserve. Without the right tools and knowledge, you may not be in a position to maximise your machine performance.**

When we look at improving the performance of heat treatment machines, we look at two key areas; finished product quality and machine downtime. Both have significant cost implications if not considered and implemented correctly.

Here are 5 common mistakes that we help machine maintenance and design teams overcome every day.

## MISTAKE #1

### Wrong selection of electrical switching device.

Common industrial switching devices include the mechanical contactor, solid state relay and thyristor (SCR) power controller. Each have their advantages but with advancing technology and reduced costs is it time to look again?

Contactors can be 2 to 3 times cheaper than SSR's to initially purchase but with a limited life span and a machine used daily, you can be replacing contactors 2 or 3 times a year.

With the SSR / SCR and their wear free technology, 10 year life spans can be expected. With a typical 12 to 18 month pay back, that's a huge saving year on year. Plus with tighter temperature control, improved heater life and reduced machine downtime, it's a no brainer.

Give us a call or request a no-obligation quote and see how much you can save.



## MISTAKE #2

Not sizing your power device correctly for your load.

Many power switching products on the market today quote their nominal amp size as the package size. When calculating the power device for your load you need to consider the line voltage, heating element and nominal temperature inside the cabinet.

If due consideration is not made your switching device could be working at its maximum (or over) resulting in a shorter working life.

At CD Automation we size the power controller exactly to your load and add an extra 15% safety margin to cover for any fluctuations in voltage supply, temperatures etc during the life of your machine.

This results in a typical life span of over 10 years (MTBF) for your power controller and one less thing for you to worry about.



## **MISTAKE #3**

### **Allowing internal temperatures to rise.**

During the lifetime of your machine, key factors such as temperature may vary. All components will be affected by temperature changes that could shorten their life considerably.

Every 10 degrees C. rise over ambient temperature cuts electronic life in half. Using forced cabinet cooling can avoid early automation drive replacement.

Our power controllers are sized to work up to 40 degrees C. Above this value and the units switching capability will be reduced and a derating calculation will need to be made to determine its correct working amp size.

It's worth periodically measuring the temperature inside the cabinet to ensure it's not creeping up. If it's above 40 degrees C., give us a call and we'll help you do the sums.

## MISTAKE #4

Thinking fixings and connections stay tight on their own.

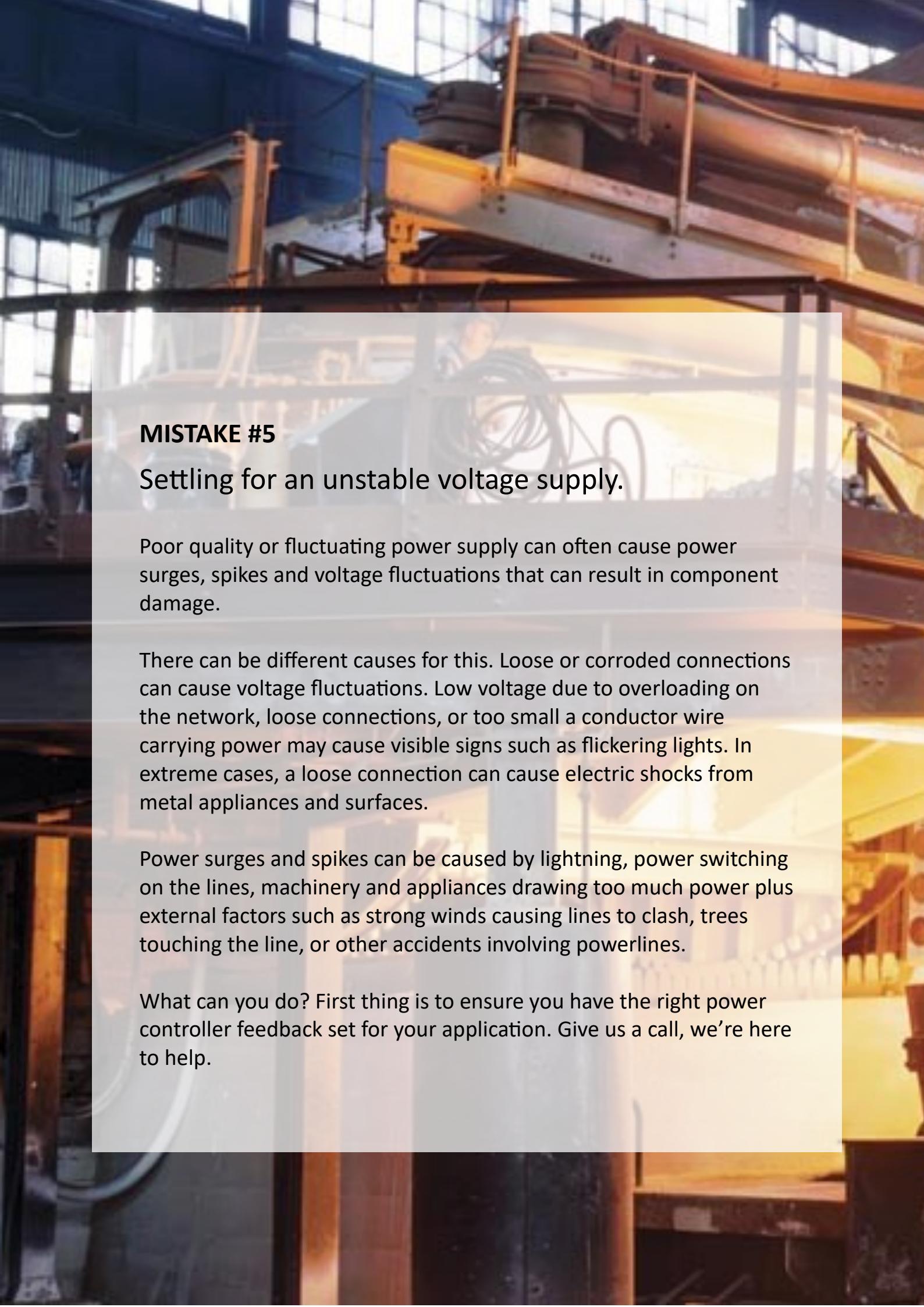
You would be surprised how many machine failures are caused by weak connections.

Electrical connections need to be mechanically tight to ensure that the resistance across that connection is as low as possible, ideally 0 ohms.

When a connection becomes either loose or corroded, it develops resistance. This resistance dissipates power in the form of heat when current flows through it. Even a resistance as low as 5 ohms can produce more than enough heat to burn up the connection and surrounding wires. Faulty wiring can also cause your electricity bill to increase.

We recommend regular tightening of all major connections and fixings to keep your installation safe and working as designed.





## MISTAKE #5

### Settling for an unstable voltage supply.

Poor quality or fluctuating power supply can often cause power surges, spikes and voltage fluctuations that can result in component damage.

There can be different causes for this. Loose or corroded connections can cause voltage fluctuations. Low voltage due to overloading on the network, loose connections, or too small a conductor wire carrying power may cause visible signs such as flickering lights. In extreme cases, a loose connection can cause electric shocks from metal appliances and surfaces.

Power surges and spikes can be caused by lightning, power switching on the lines, machinery and appliances drawing too much power plus external factors such as strong winds causing lines to clash, trees touching the line, or other accidents involving powerlines.

What can you do? First thing is to ensure you have the right power controller feedback set for your application. Give us a call, we're here to help.



**How much money have you lost because your thermal machine is not optimised? You can get back on top with our help and a CD Automation power controller.**

Let us help you save time and money when it comes to optimising your machine by installing a CD Automation power controller today.

Give us a call and speak to one of our friendly team, or simply request a no-obligation quotation. We're waiting and ready to help.

## Protect your investment from Poor Performance in 3 Easy Steps

### 1. REQUEST A QUOTE

Just a few questions to quickly understand your present and future electrical switching needs and aspirations.

### 2. CHOOSE A CONTROLLER

We'll select a product perfect for your application plus a second we feel gives you added benefits that maybe you haven't considered yet.

### 3. GET BACK ON TRACK

Confident you have the right product, its quick and easy to get a quote, place your order, and install and maintain for trouble-free operation.

[CLICK FOR A QUICK QUOTE](#)



*Power Control Made Simple*

Or **SCHEDULE A CALL** and learn how to protect your investment from poor machine performance.

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