5 good reasons

to review and improve the optimization of your system's power in Plastic Industry

优化塑料机械加热器性能的5个好理由

CD AUTOMATION

Controllers, Drives and Automation

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.

您知道吗，根据Oneserve的最新一项研究，在英国，停机时间每年使英国制造商损失约2000亿欧元?

您需要拥有正确的工具和知识，以便能够最大限度地提高机器的性能。

当我们着眼于加热部分以改善塑料机械的性能时，有两个具体的关键领域：成品质量和停机时间。

如果考虑不周，执行不力，这两点会对使用和维护成本产生重大影响。

这里有5个小贴士，可以让您有所收获。

1

Wrong selection of electrical switching device

使用最新一代系统控制功率和温度

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.

在工业领域，使用的是电源开关装置可以是机电式（机电接触器），也可以是电子式（固态继电器、晶闸管功率控制器、SCR）。

这两种解决方案都有其各自的优势，但随着技术的进步和降低成本的迫切需求，您的选择必须同时考虑到机器的购买成本和机器整体的生命周期成本。

机电接触器的价格比电子器件便宜2到3倍，但寿命有限。如果机器是连续循环使用，则每年可能需要更换2到3个机电接触器。

使用电子设备，寿命可达到10年！

计算起来很容易：如果考虑每年更换一次或多次，那么在机器的使用寿命内，您可以预期支付的运营成本要比使用最新一代的开关设备高得多。频繁的更换机电接触器也意味着频繁的停机，其成本不可小觑。

此外，如果再加上更精确的温度控制，延长加热器寿命，减少停机时间，选择就变得很明显了：使用最新一代的电子设备来驱动负载。

CD Automation专业制造先进的、专门设计的高科技设备，我们的专家团队已经准备好为您提供帮助。

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2

Not sizing your power device correctly for your load
适当调整电源控制设备的大小

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.

需要避免的一个错误是，仅仅根据额定功率来确定功率控制装置的大小。
在确定设备大小时需要考虑控制面板内的线路电压、加热元件和温度等级。如果不加以适当的注意，就有可能使设备的尺寸过小，从而使其以最大功率工作，甚至超过极限，从而缩短其寿命。在CD Automation，我们会根据您的负载精确地调整功率调节器的大小，并增加15%的安全系数，以覆盖电源电压、温度等可能的波动。所有这些都意味着我们设备的典型寿命可以达到10年以上（MTBF）。如果您正确设置单位的大小，您就不会有那么多问题需要担心。

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3

Allowing internal temperatures to rise

根据您所使用的组件在温暖月份可以使用的温度，考虑它们的降额曲线

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. Its 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.

所有电子元件的工作和寿命都会受到工作环境温度的影响。环境温度每升高10℃，电子产品的寿命就会减半。采用强制柜制冷可以避免电子单元的提前更换。我们的功率控制器的尺寸可在40° C的温度下连续工作。超过该值，机组的开关容量将减少，需要进行降额计算才能确定控制单元的正确尺寸。有必要定期测量控制柜内的温度，确保它不会上升。如果温度高于40℃，请致电给我们，我们将帮助您正确确定控制柜的空调或制冷尺寸。

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4 Thinking fixings and connections stay tight on their own

注意控制柜内各单元的固定和连接方式

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.

您会惊讶于有多少机器故障是由弱连接引起的。电气连接必须正确拧紧，以确保该连接上的电阻尽可能低，理想情况是0欧姆。当连接松动或腐蚀时，就会产生电阻。这种电流通过的电阻以热量形式耗散功率。即使是只有5欧姆的电阻，也会产生足够多的热量，导致连接本身和周围的电线熔化。错误的布线也会增加消耗，因此会给产生意外的电费。

建议定期紧固所有主要的连接和紧固件，以保证您的安装安全和良好的运行。

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5

Settling for an unstable voltage supply
仔细考虑电源电压波动的影响

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.

供电质量差或电源电压波动通常会导致电涌，尖峰和电压波动，从而可能导致组件损坏。原因多种多样：电压波动、市电过载造成的低电压、连接松动或导线过小，也会造成明显的供电质量差的迹象，如灯光闪烁。在极端情况下，连接松动会导致设备和金属表面之间产生电弧。雷击、线路停电、机械和电器耗电过大，都可能造成电涌和尖峰。其他外部因素，如强风，会造成线路碰撞、树木碰线或其他电力线路事故。

您可以做什么呢？
除了将前面提到的要点付诸实践外，还可以使用配备有电压反馈的功率单元。这些装置能够快速补偿电压的升高，并为热处理过程提供所需的功率。通过这种方式，您将避免浪费能源或由于塑料材料温度过高而获得不符合生产规格的结果。
请致电给我们，我们在这里为您提供帮助。

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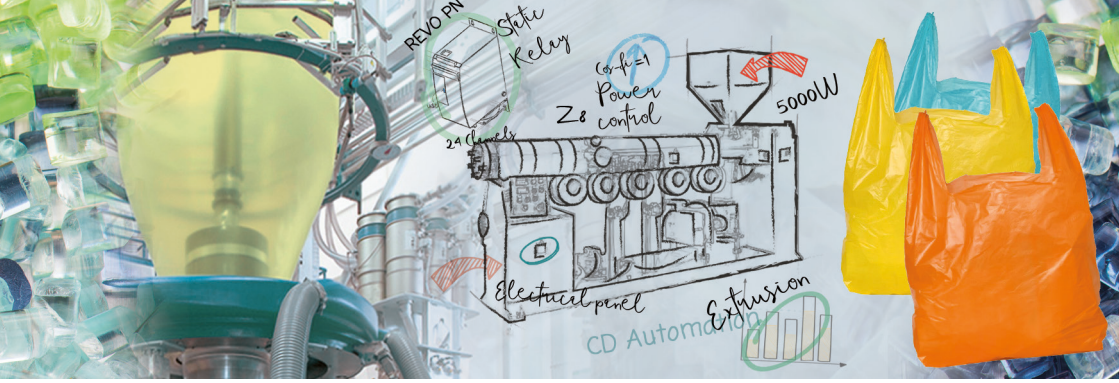
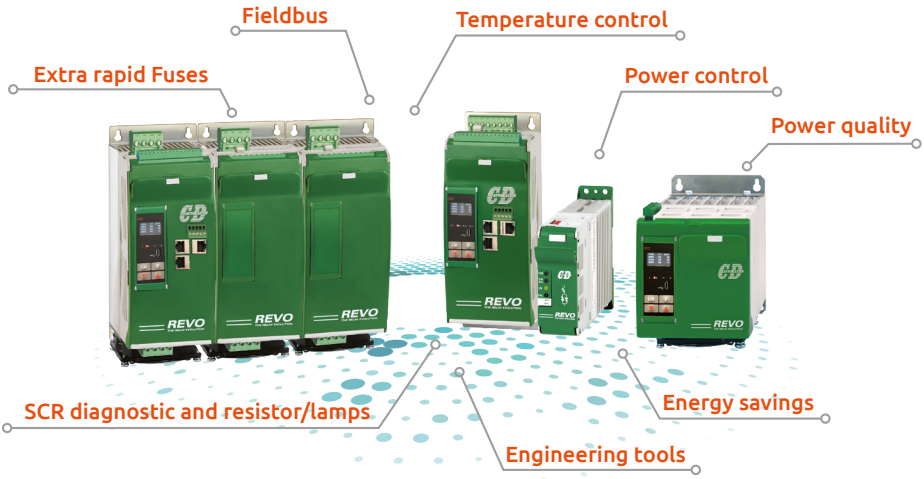
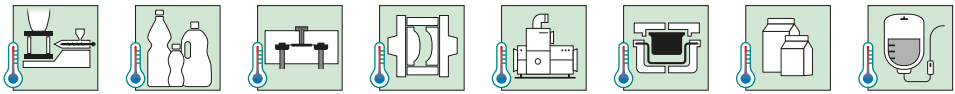


We help engineers and system designers to reduce plant complexity and costs by integrating thermoregulation systems based on static relays for smart manufacturing (industry 4.0)



我们通过整合基于静态继电器的温度控制系统，帮助工程师和系统设计师降低工厂的复杂性和成本，以实现智能制造（工业4.0）



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