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5 Tips for Choosing **the Best Temperature Control System.**

When considering a temperature control system for plastic processing, precision and accuracy is critical. To keep up with increasing demand, Mokon's expert engineers have developed process heating and cooling equipment that regulates molds, dies and polymer temperatures to ensure effective control. Find out how to select the best temperature control system by following these five key steps.

1 | Calculate System Size

Effective selection and sizing of the temperature control system for your molds or dies can make a significant difference in reducing startup waste, achieving higher quality, increasing output and improved profitability.

Collecting the application details to calculate the size of the temperature control system is a crucial element to achieve accurate process temperature control. Never assume that a comparable existing installation has been effectively sized and that the proper temperature control system has been designed to deliver the product quality and throughput management you're looking for.

Sizing parameters should be determined by performing a thorough calculation of the process load conditions to ensure the correct heating, cooling and pump capacities are selected. It is essential to understand that the heating and cooling loads fluctuate depending on the materials used and complexity of the component being manufactured. Therefore, the size or capacity of a temperature control system must be designed to accommodate the varying conditions that may include ambient conditions that affect system efficiency.

Typical sizing questions include equipment ambient conditions, type and size of molding machine, dimensions of mold, mold weight and material, process temperature required, preheat time required, inlet/outlet quantity and size of lines, shot weight and cycle time, medium, and control requirements.

You should always include a safety factor to allow for unknown or unexpected conditions. The size of the factor is dependent on the accuracy of the wattage calculation. Generally speaking, the smaller the system with fewer variables and outside influences, the smaller the safety factor.

1 | Calculate System Size, *continued*

On the other hand, the larger the system and the greater the variables and outside influences, the greater the safety factor. Here are some general safety factor guidelines:

- 20% safety factor is the average
- 30% for larger systems with varying loads, cycle times, etc.

2 | Find the Right Fluid

Liquid temperature control systems provide a uniform medium to transfer heat or cooling to a process. Liquid can circulate into areas that are challenging or ineffective by other means of temperature control like steam, cartridge heaters or heating elements for example. Control accuracy within fractions of a degree is possible with the correct system and options selected. Compact and energy efficient designs allow for control of processes in limited spaces and offer reduced operating costs.

Circulating liquid temperature control of your process can be handled through three different mediums: water, water/glycol or heat transfer oil. The decision on which fluid type selected would depend upon the temperature you are trying to achieve, heating and/or cooling loads, and process requirements like flow capabilities, cycle times, material, etc.

3 | Assess Control Features

Your process control demands accuracy and reliability, while operators need easy-to-use and highly visible controls and indicating lights. Microprocessor based controls provide ultimate control performance and are configurable to meet specific application needs. These types of controls can greatly optimize your process. A variety of control features and communication options are available to ensure you are obtaining easily configured and optimal results.

4 | Plan System Installation Carefully

For optimum performance, make sure to plan out your system's location and ensure it's located in an area that provides adequate space and ventilation. Before installing/starting up any temperature control system, read the manufacturer's instruction manual and follow their installation/startup procedures carefully. Complete an inspection of all electrical and mechanical components of the system including wires, fittings, etc. If a startup checklist is provided, follow that closely.

5 | Prolong the Life of Your Temperature Control System

Preventive maintenance procedures should regularly be performed to keep the temperature control system clean and well-maintained. Performing weekly, monthly and quarterly checks will extend the life of your system. Refer to the procedures provided in the manufacturer's instruction manual.

By following some basic guidelines before, during and after installation, you can avoid problems and ensure that your temperature control system will provide a high level of efficiency and reliability and an extended life.

For additional information on heating and cooling equipment for plastic processing, contact Mokon today.

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