

NEW RE-CIRCULATING HEATER STANDARD

The direct gas fired industry has had some significant changes in listing requirements over the past few years. One of those changes was to the ANSI Z83.18 standard for Re-circulating direct gas fired heaters. Under this new standard, one of the restrictions is the amount of heat (temperature rise) you can add to the space, based on percentage of fresh air that is introduced into the building. After hours of research, design and testing, our engineering team came up with a new control system that will be used to meet this new requirement. This new control system has been designed with our customer's safety, ease of service and economics in mind. The name of the new control system is the RCS System which is an acronym for "Re-circulating Control System".

The RCS System monitors return air temperature, fresh air temperature, will limit return air damper percentage, and will limit maximum discharge temperature. There are different RCS Systems available to best fit your application. Below is a chart on the different RCS Systems to pick from.

How to pick the RCS System for your Application

1. What is your minimum Winter Design Condition? Use the chart below to see which system qualifies: if Minimum Outdoor Air Temperature is above temperature listed on chart, that system qualifies.
2. What is your Minimum Indoor Air Temperature? Look at qualified systems available (after step one) to see which system qualifies to meet this requirement.
3. After step one and two, your qualified system may be down to one selection; if not, you now have the choice of picking the system that best fits the application.

Note: Always pick the RCS System closest to your minimum temperature conditions for best performance.

Re-Circulating Heater Control Systems

RCS System	Minimum Outdoor Air Temperature	Minimum Indoor Air Temperature	Maximum Recirculation Percentage	Maximum Discharge Temperature
RCS5	-30°F	7°F	60%	90°F
RCS10	-30°F	25°F	50%	120°F
RCS15	-25°F	58°F	80%	90°F
RCS20	-25°F	54°F	60%	120°F
RCS25	-20°F	55°F	50%	140°F
RCS30	-15°F	47°F	60%	120°F
RCS35	0°F	52°F	80%	90°F
RCS40	0°F	35°F	50%	140°F

How does the RCS System work?

The Re-circulating heater will modulate the return air and fresh air bypass dampers based on the damper control selected: two-position, photohelic, or manual potentiometer. The RCS System is designed to limit percentage of return air and discharge temperature based on the system selected as shown in the chart above. If the temperature drops below minimum set points, the bypass dampers will drive to 100% fresh air for a short time until minimum set points are satisfied. Once the trip minimum set point is satisfied, the bypass dampers will return to normal operation.

It is important when sizing and designing your Re-circulating heater to select the RCS System that best meets the application. When ordering a Re-circulating system, please specify the RCS system you would like to use; otherwise, a RCS system will be selected for you.