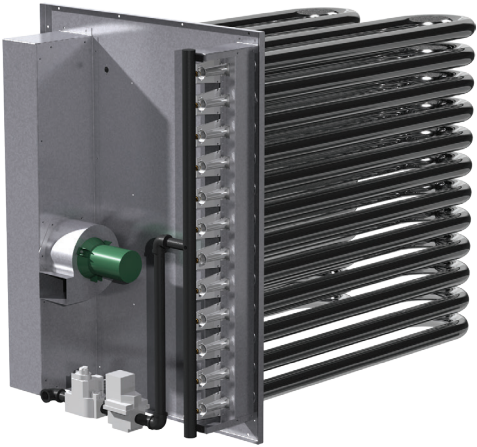


High Turndown Furnace

Available on Models IGX, RV, RVE, & RVC



- Up to 16:1 turndown per furnace
- Precise temperature control
- Seamless electronic modulation
- Less cycling during part-load conditions
- Commissioning sequence for easy start-up

A high turndown furnace option is available on models IGX, RV, RVE, and RVC. This high turndown is industry-leading technology that is patent pending for the tubular-style heat exchanger market which makes it a specifiable feature.

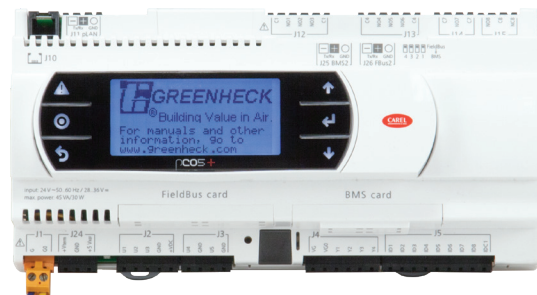
Precise Temperature Control

This high turndown furnace option offers up to 16:1 seamless turndown per furnace, allowing for more precise temperature control than Greenheck's competitors. Additionally, the higher turndown correlates to a decreased minimum firing rate, resulting in less furnace cycling on part-load days and increased longevity. These furnaces can be programmed to maintain a discharge or room temperature, controlled via the unit microprocessor or a building management system.

When an IGX unit has multiple furnaces, those furnaces are placed in series. With this design, as the furnace quantity increases, so does the turndown. On a three-furnace system IGX with high turndown furnace control, this results in a turndown of up to 48:1!

Easy Start-Up with Commissioning Sequence

A microprocessor will be supplied with each unit as part of the high turndown furnace controls. This microprocessor contains all of the logic required to operate the unit without a need for outside control inputs. The microprocessor controls will include Greenheck's standard furnace commissioning sequence for initial unit start-up which decreases set-up time and provides a consistent and easy furnace start-up.





Benefits of High Turndown

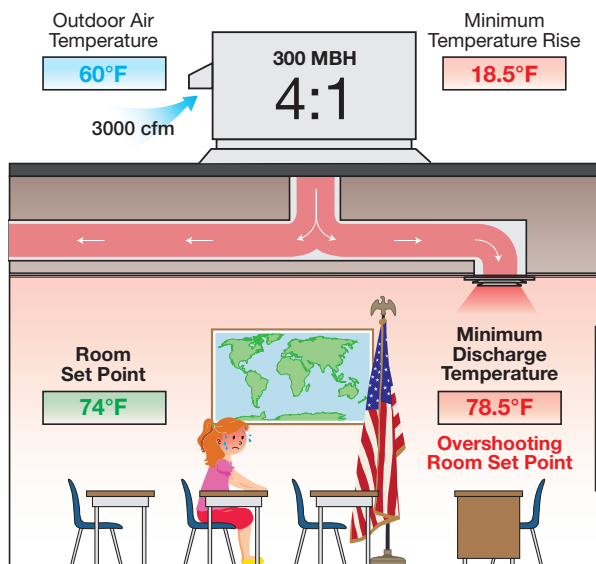
The high turndown furnace will reduce overshooting set point temperatures, which in turn will decrease furnace cycling. This advantage of the high turndown furnace is made especially apparent on part-load days, as shown in this example. The example below is based on an outdoor air winter design of 0°F for a 3,000 cfm outdoor air system. If designing to a 74°F leaving air temperature, a 300 MBH furnace would be needed.

The minimum low fire temperature rise of 18.5°F for the 4:1 furnace, is relatively large when compared to the minimum low fire temperature rise of 4.6°F for the 16:1 high turndown furnace.

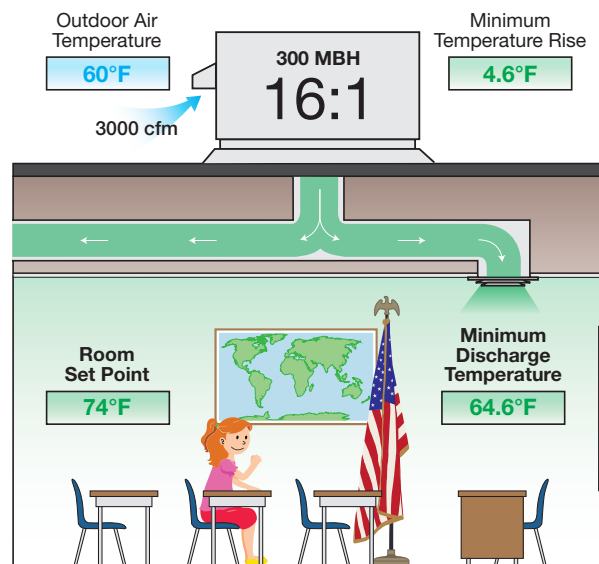
On a part-load day of 60°F outside air, the 4:1 furnace would result in a minimum leaving air temperature of 78.5°F, which overshoots the room set point of 74°F, resulting in both overheating the space and in furnace cycling.

The minimum leaving air temperature of the high turndown furnace is 64.6°F, well below the room temperature set point. Since the high turndown furnace is able to modulate seamlessly, it is able to more accurately maintain the room set point, resulting in superior occupant comfort.

High Turndown Furnace Example				
Furnace Control	Entering Winter Temperature	Airflow	Design Leaving Air Temperature	Minimum Low Fire Temperature Rise
4:1 Electronic Modulation	0°F	3,000 cfm	74°F	18.5°F
16:1 Electronic Modulation				4.6°F



Discharge temperature overshoots room set point, resulting in furnace cycling.



Discharge temperature seamlessly modulates to achieve room set point.

High Turndown Furnace

