



Manufacturer Testing Reveals Direct Energy-Saving Benefits of APR Control in HVAC Systems

Intro:

Reducing power consumption in HVAC systems is vital for optimizing energy performance and minimizing operating costs. The APR Control has become a popular solution that has gained the attention of the HVAC industry in both new and retrofit applications. In this article, we delve into the results of a real-world test conducted by a major HVAC equipment manufacturer to assess the energy-saving benefits of utilizing the APR Control at part load conditions.

Background:

Rawal Devices has long claimed that the APR Control can save power by reducing compressor lift and increasing evaporator efficiency. However, until now, there had been a lack of actual evidence to support this claim.

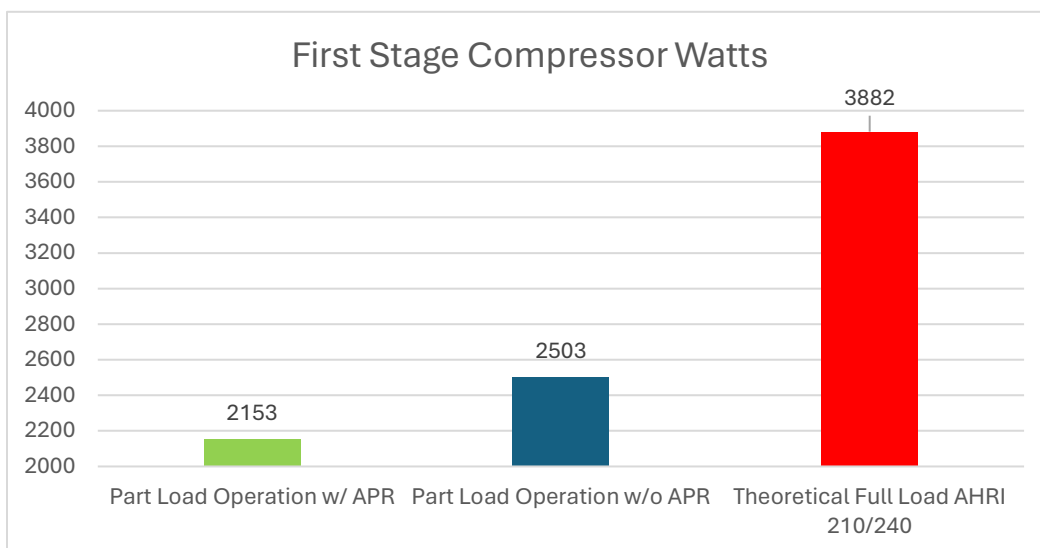
The test conducted by an industry leading HVAC equipment manufacturer aimed to evaluate (uncover) the APR Control's potential as a factory-installed option and its ability to keep the system active and dehumidify at part load conditions without compromising energy performance.

Testing Parameters:

The evaluation took place in a state-of-the-art testing facility and utilized a 10-ton unit with two 5-ton independent circuits.

The test was conducted under part load conditions, with parameters set at 1500 CFM, full stage, and 65 degrees outdoor ambient condition. It compares the watts used on the first stage compressor of a unit with an APR Control installed vs. a unit without an APR Control. In addition, we show the watts used by the unit operating at Full Load (Design Day/AHRI 210/240) conditions.

Test Results:





The test results provided concrete evidence of the APR Control's impact on energy consumption. By comparing the energy usage of the unit with and without the APR Control at part load conditions, the data revealed compelling findings.

Over a 30-minute test period, the unit with the APR Control consumed 2,153 watts on the first stage compressor, whereas the unit without the APR Control used 2,503 watts. **Removing the APR Control resulted in a staggering 16% increase in power consumption compared to the unit with the APR Control installed.**

When comparing the unit with the APR Control operating at part load conditions to a unit operating at full load without the APR Control, **the APR Control reduced power consumption by nearly 45%**. Not only does this highlight substantial energy savings, but it also underscores the efficiency improvements achievable with the APR Control.

Conclusion:

The data-driven evidence presented in this real-world test solidifies the APR Control's power-saving claims. When analyzing the implications of these results, it is vital to differentiate the APR Control from hot gas bypass. The APR Control has often been mistaken for hot gas bypass, a misconception that we leaned into in our early days to help the industry better understand what the APR Control is.

As proven by the testing data, the APR Control has significant energy-saving capabilities, while hot gas bypass increases power consumption. The APR Control is also ASHRAE 90.1 compliant, further validating its effectiveness.

By utilizing the APR Control in air conditioning and heat pump systems, users can realize power and utility cost savings. As HVAC equipment manufacturers evaluate options to optimize their equipment, the APR Control stands out as a reliable solution for reducing power consumption and enhancing performance, particularly under part load conditions. It is evident that the APR Control's benefits extend far beyond mere claims, rendering it a valuable addition to optimize HVAC system operations.

If you are considering implementing the APR Control in your HVAC system to achieve energy savings, please contact us to discuss your applications! We may be able to find ways to further reduce your energy consumption.



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