RESEARCH, DEVELOPMENT, AND TESTING CENTERS

Delivering Performance and Innovation
No one knows more about HVAC testing than Nortek Air Solutions, based on years of research and development by experts in the field.

Over the past two decades, Nortek Air Solutions Test Lab personnel garnered the highest reputation from customers and consultants across the country and became recognized as a leading authority in the HVAC industry.
Nortek Air Solutions offers the innovation and expertise of the largest group of custom heating, ventilation, and air conditioning (HVAC) brands in North America for your commercial, industrial, or institutional indoor environment. Nortek Air Solutions products are custom-engineered to bring you the optimal solutions for maximizing energy efficiency, reducing annual operating costs, improving indoor air quality, and achieving low sound levels. We offer high quality systems in multiple shapes, sizes, and configurations for new construction and renovation or retrofit applications.

**Thermodynamics Laboratory**  
*Shakopee, Minnesota USA*  
Thermodynamic, psychrometric, airflow, water flow, and energy testing and evaluation for customer witness, regulatory compliance, research, and development.

**OKC Laboratory**  
*Oklahoma City, Oklahoma, USA*  
Acoustic, airflow, thermodynamic, energy testing for customer witness, regulatory compliance, research, and development.

**Advanced Air and Acoustics Laboratory**  
*Milwaukie, Oregon USA*  
Airflow and energy testing for customer witness, regulatory compliance, research, and development.

**Factory Testing**  
*Multiple*  
All manufacturing locations have a level of factory testing to ensure accuracy, base performance and compliance. Additional factory function testing and factory commissioning are options available.
BRINGING NEW TECHNOLOGY TO REALITY

The state-of-the-art Nortek Air Solutions Thermodynamics Laboratory is used to accurately measure thermal performance, airflow, water flow, and energy consumption. This lab focuses on next generation technology development and precision customer and regulatory compliance testing.

Located minutes from the Minneapolis/St. Paul International Airport, the Thermodynamics Laboratory offers impressive capabilities including:

- Two Psychrometric Chambers
- Cooling Capacity: 0.5 tons up to 150 tons
- Heating Capacity: 2KW up to 500 KW
- Airflow: from 100 SCFM up to 68,000 SCFM
- Water Flow: 2GPM up to 400 GPM
- Precision power measurements
- Temperature and humidity control
- 12,000 ft² laboratory
- Customer conference room
- Automated testing capabilities
- NIST Traceable calibrations
- Component testing
- Full scale unit testing

Contact NAS for your specific testing needs.

Guaranteed performance of units to ASHRAE, AHRI, UL, ETL and other regulatory standards.
OUR COMMITMENT TO YOU

As the leading group of custom HVAC manufacturers for commercial, industrial and institutional applications, Nortek Air Solutions companies make things possible with your HVAC system that would otherwise be unachievable using a commercial solution. Your solution is our mission – whether it involves meeting an impossibly small footprint, extremely low sound or high operating efficiency, high efficiency filtration, multiple levels of redundancy, or you want to make the HVAC system disappear in your building design. Our local representatives listen to your needs and work with our engineering staff to design systems that meet your unique needs.
WHERE QUIET IS DEFINED

We know how important it is that your HVAC systems operate quietly, which is why Nortek Air Solutions has always committed to providing this important benefit. We consistently go the extra mile to provide solutions that offer an acoustically superior indoor and outdoor environment—without adding costs. In fact, you’ll find that our solutions actually lower your attenuation costs.

COMMITMENT TO CUSTOMER SATISFACTION

Our commitment to customer satisfaction, and to providing a superior product that meets your acoustical needs is evidenced by our state-of-the-art sound laboratory. The lab is one of the largest, fully equipped, dual reverberant chamber HVAC testing facilities of its kind. Located in Oklahoma City on the Governair campus, the lab provides a wide range of unique services to our customers and suppliers, including acoustical modeling, comprehensive production testing, and robust performance and diagnostic analysis. It also serves as a site for rigorous, ongoing research and development testing and modeling, as well as a place for customer-witnessed testing of airflow, thermal, vibration, and acoustical performance of units manufactured by Nortek Air Solutions.

PROVIDING ACCURATE MEASUREMENTS OF PERFORMANCE

Nortek Air Solutions sound lab is designed and equipped to perform simultaneous testing in accordance with AMCA Standard 300 for sound power levels and AMCA Standard 210 for airflow performance. Since the lab first earned AMCA accreditation, Nortek Air Solutions has worked to continually increase the lab’s capabilities. This commitment to continued growth has allowed for testing units in accordance with other standards and requirements, such as AHRI 260 testing, additional acoustical testing methods, thermal testing, vibration testing, cabinet leakage testing, and full power analysis—just to name a few.
COMPETENCIES AND CAPABILITIES SOUND POWER

TESTING — performed from 50 to 10,000 HZ, in accordance with AMCA Standard 300. The lab’s dual AMCA 300 reverberant chambers are among the largest in the industry.

AIRFLOW TESTING — conducted up to 65,000 cfm (31 m3/s) or more, depending on individual unit static pressure capabilities, in accordance with AMCA Standard 210.

THERMAL PERFORMANCE TESTING — air handlers and compressorized units can be evaluated up to 150 tons (528 kW) of cooling and 1,500 MBTU (440 kW) of heating. The lab is equipped with both a chiller and a boiler to offset the tested equipment’s heating and cooling capacity.
THE ADVANCED AIR MOVEMENT AND ACOUSTICS LABORATORY

The advanced air movement and acoustics laboratory is located conveniently near the Nortek Air Solutions production facility in Tualatin, Oregon. Its purpose is to verify the actual airflow and acoustic performance of our technology in a laboratory setting before it is applied in Nortek Air Solutions products.

The research and testing performed at this lab has been essential to the continuous improvement in the patented FANWALL TECHNOLOGY® used in all Nortek Air Solutions air handling equipment. The innovative fan design research and development done here, including fan development, coplanar, low loss backdraft damper, and active noise control, has kept FANWALL® systems at the forefront of energy efficiency, redundancy and quiet operations for more than two decades.

6-CH, TRI-AXIAL VIBRATION PLOTS
TESTING CAPABILITIES

- AMCA 210 and 300
- Airflow chambers for:
  - 5,000 cfm
  - 20,000 cfm
  - 50,000 cfm
  - 100,000 cfm
- Fan dynamometer
- Motor dynamometer
- Power and harmonics analyzer
- Flow visualization – neutral buoyancy bubble generator
- Acoustics
- Structural resonance and modal testing

SOUND/VIBRATION RUN-UP (FREQUENCY & MAGNITUDE VS SPEED)
FACTORY TESTING
All units built by Nortek Air Solutions include a point-to-point physical test of the electrical system and a basic checkout of functionality to comply with UL and ETL standards.

FACTORY FUNCTION TESTING, STARTUP AND COMMISSIONING
A factory startup of the unit can be conducted at additional cost to validate the system. Some of the features available are:

- Circuit Activation
- Validation of all Safety Circuits
- Sensor Operations
- Protocol Validation
- Performance Check at Load
- Basic Sound Tests
- Charging of Refrigeration
- Cabinet Leakage Test
- Wall Deflection Test
- Vibration

Complex testing needs or precision performance measurements can be conducted at one of the laboratories.
SCHEDULING A VISIT
If your application requires the assurance of a unit laboratory test, we invite you to witness your unit operating in our laboratory or factory.

CONFIDENCE IN PERFORMANCE
Comprehensive report is provided for your project with calibrations, explanations and test data.

VISIT ONE OF OUR TEST LABS

NORTEK AIR SOLUTIONS TEST LABORATORIES WELCOME YOUR VISIT
We encourage you to come visit our labs to get a first hand view of the various forms of testing that we undergo to ensure the world’s highest quality mission-critical solutions.

To find your local representative visit www.nortekair.com
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