JADEC Test Lab Facts

The Johnson Controls Advanced Development & Engineering Center (JADEC) in York County, Pennsylvania, features a new 250,000-square-foot HVAC testing lab and support facility – making it the newest and most advanced in the world of its kind.

The test lab facility features over 20 labs that can test air-cooled and water-cooled chillers, acoustics, power electronics, compressors, air handling units, and includes various other ancillary labs that can help spur innovation. The facility also houses a training center for variable refrigerant flow (VRF) systems, chillers and other products and technologies

Sustainability and Environmental Stewardship

- Closed loop water system with water reclamation system reducing discharge to the municipality by 12 million gallons a year
- Oil reclamation system repurposes the oil; thereby eliminating oil in the waste stream
- Refrigerant delivery, recovery and reclamation system onsite reducing the environmental impact of trucking

Air-cooled chiller labs

- Four fully automated and controlled labs
- Chiller capacity test range between 10 to 600 Tons of refrigeration
- Wide testing operating range
    - Heat pump lab with capability of testing to -20°F ambient air temperature
    - All labs with capability of testing to 131°F ambient air temperature
- One hemi-anechoic sound room enabling the chiller acoustic performance to be measured, analyzed and the chiller fine-tuned for optimum performance
- Capability to run 60Hz and 50Hz frequencies – covering the global market
- Voltage capability between 208V to 575V – covering the complete air-cooled global market

Water-cooled chiller labs

- Nine fully automated and controlled labs
- Chiller capacity test range between 7 to 3200 Tons of refrigeration
- Capacity turndown ratio of 30:1 allows Johnson Controls to very precisely prove customer real world conditions
- Three hemi-anechoic sound rooms enabling the chiller acoustic performance to be measured, analyzed and the chiller fine-tuned for optimum performance

    - Sits on its own foundation 50 feet below the foundation of the main building, providing vibration and noise isolation.
- Capability to run 60Hz and 50Hz frequencies – covering the global market
- Voltage capability between 208V to 4160V -- covering the complete water-cooled global market

Compressor labs

- Fully automated and controlled 1000 and 3000 horsepower labs
- Speed control from 3-100% motor rated speed
- Ability to test multiple refrigerants up to maximum volumetric flow rate of 17,200 CFM
- Very large turndown capabilities to accurately map full operating range of compressor
- Multiple side loads to support performance testing for process industry
- Multiple orifice lines for ease of flow measurement in accordance with ASME code requirements
- Secondary chilled water system to maintain constant refrigerant condensing pressure

Power electronic labs

- Electronics lab area to perform printed circuit board work, prototype control panel construction, component testing and construction of test fixtures
- Prototype variable speed drive construction area
- Two testing areas for long-term reliability testing of components and subassemblies
- Low power test area for variable speed drives
- Two high power test (800HP, 1500HP) control rooms for variable speed drive testing on dynamometers
- Two regenerative dynamometers (800 HP, 1500 HP) provide the ability to test variable speed drives to 104% full load rating

Air handler lab

- Simultaneous measurement of airflow and sound
    - Air handler testing according to AHRI Standards 430 and 260
    - Fan testing according to AMCA Standards 210 and 300
- A 101,000 cu. ft. reverberation sound chamber to measure air handler sound according to AHRI Standard 260
- Reverberation sound chamber qualified for AHRI Standard 220 and AMCA Standard 300 testing
- 100,000 CFM and 30,000 CFM AMCA Standard 210 airflow meters
- Power consumption measurement capabilities for fan/motor power draw
- ACMA third-party accreditation

Multipurpose/component labs

- 11-station test area for components such as transducers, oil pumps, condenser fans, etc.
- Hydro tank for air testing components and UL burst and strength testing of pressure boundary castings