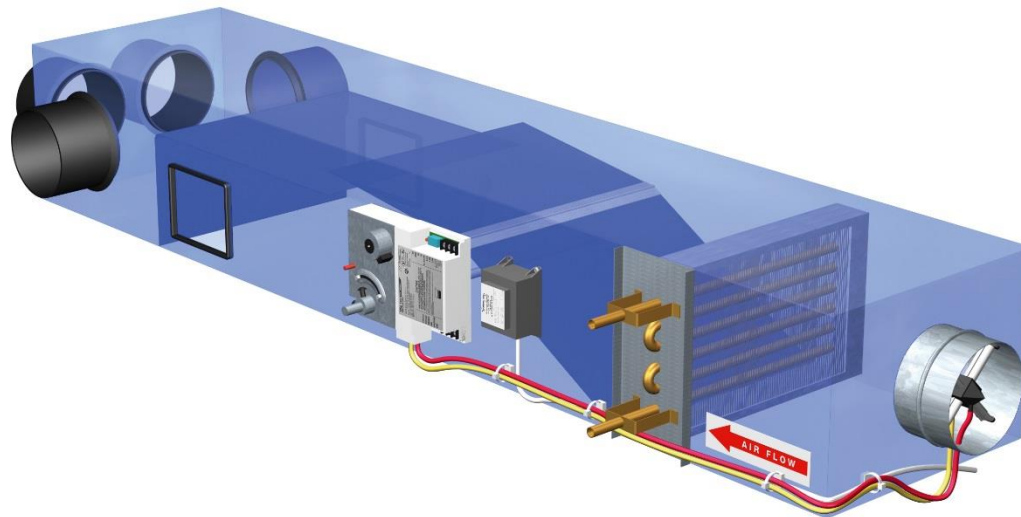
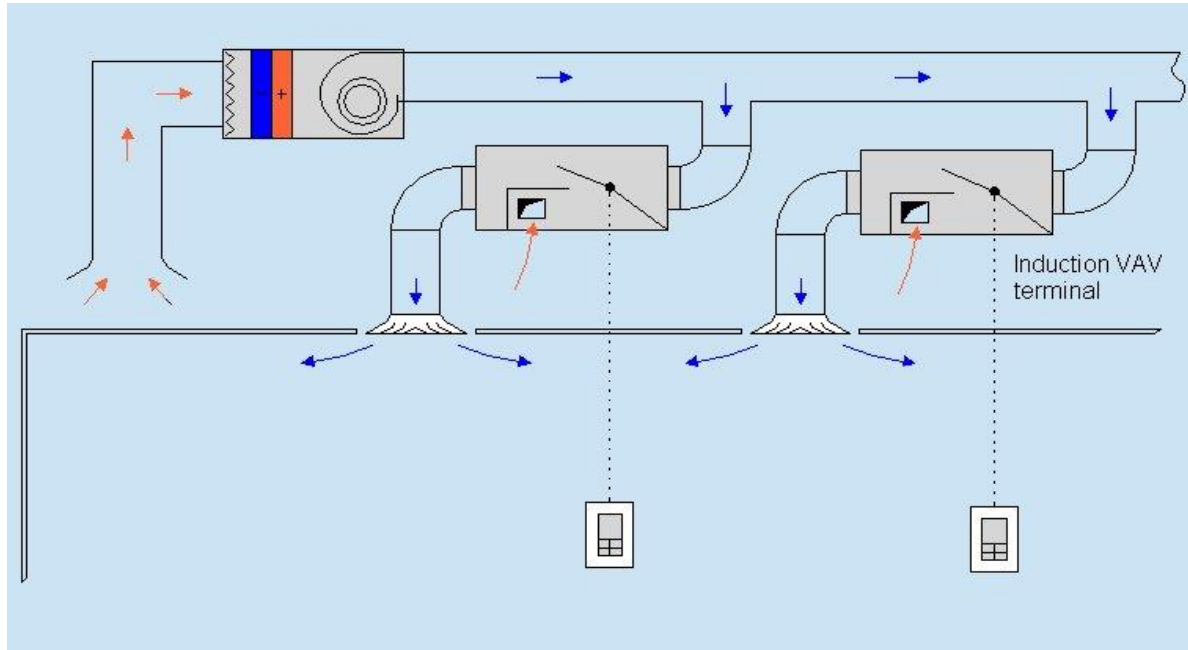


Induction Variable Air Volume Systems



Induction VAV System

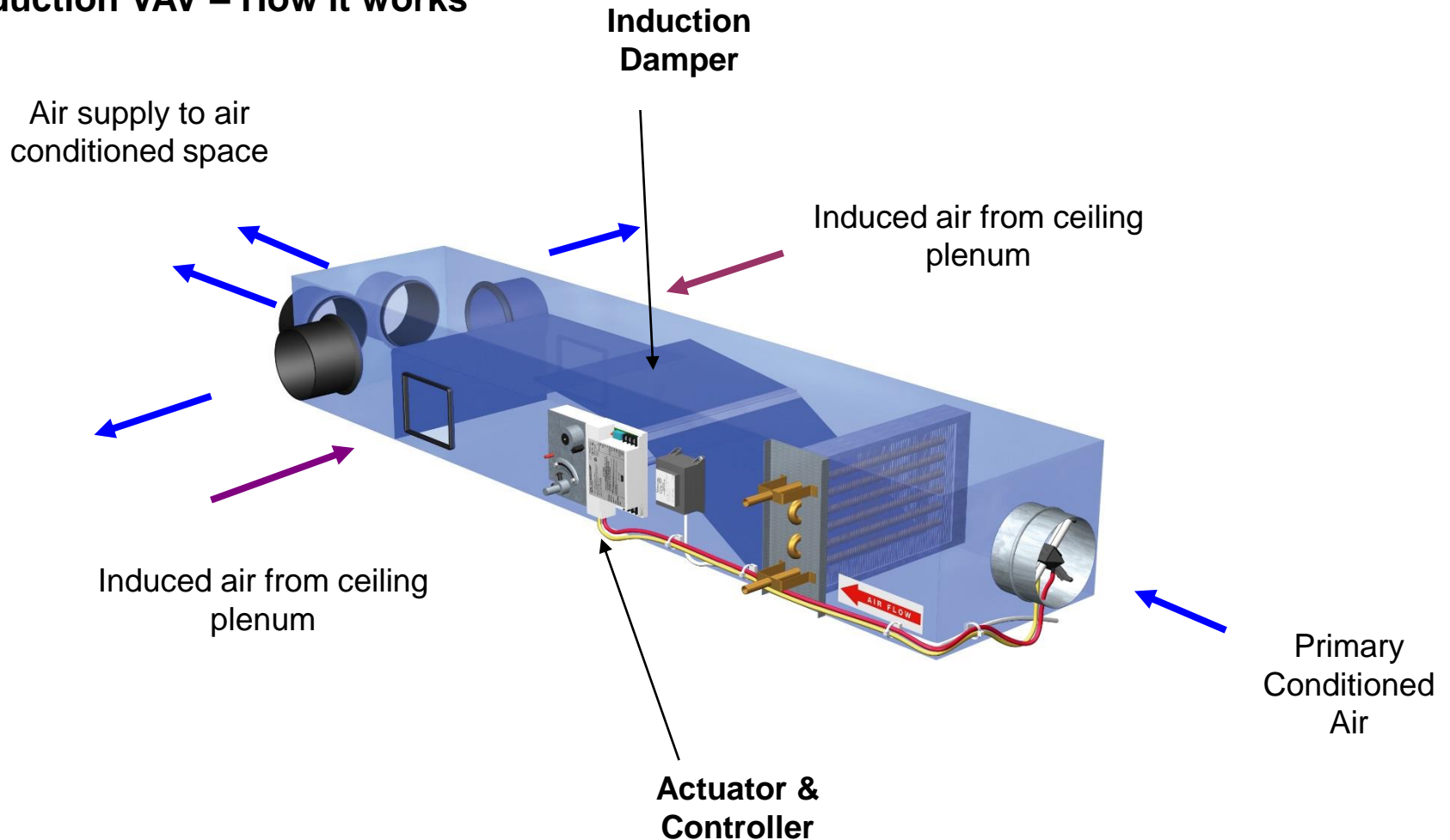


The Induction VAV system works on a similar principle to the standard VAV system varying the quantity of primary cooled air to the room in response to the cooling requirements.

However the Induction VAV system takes the comfort levels and energy saving capability of the system to a higher level.

Induction VAV System

Induction VAV – How it works

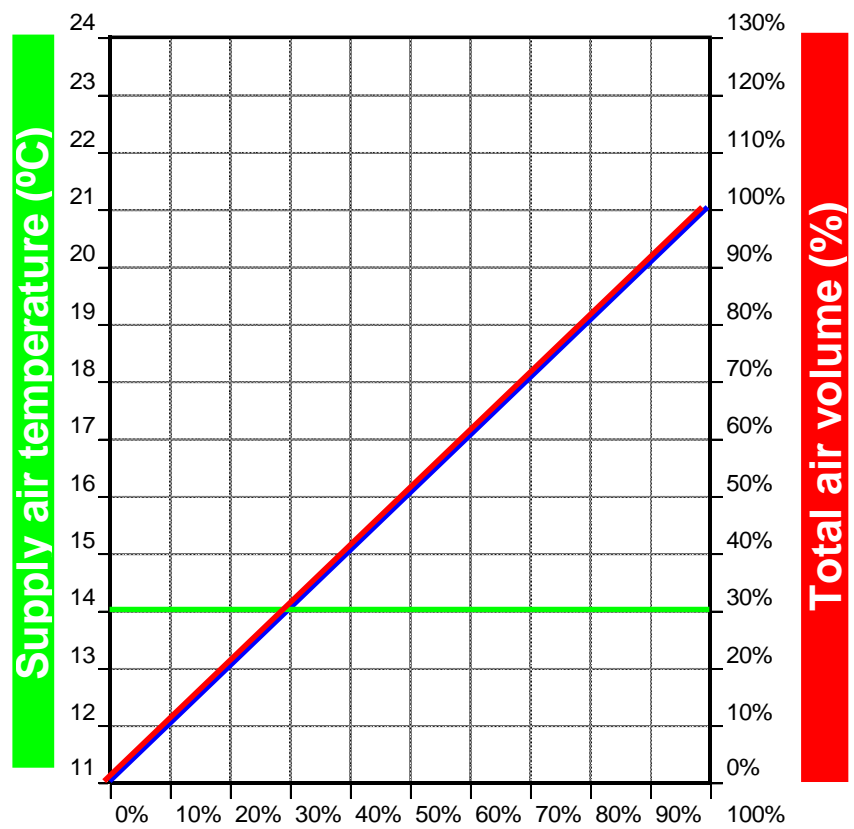


Induction VAV System

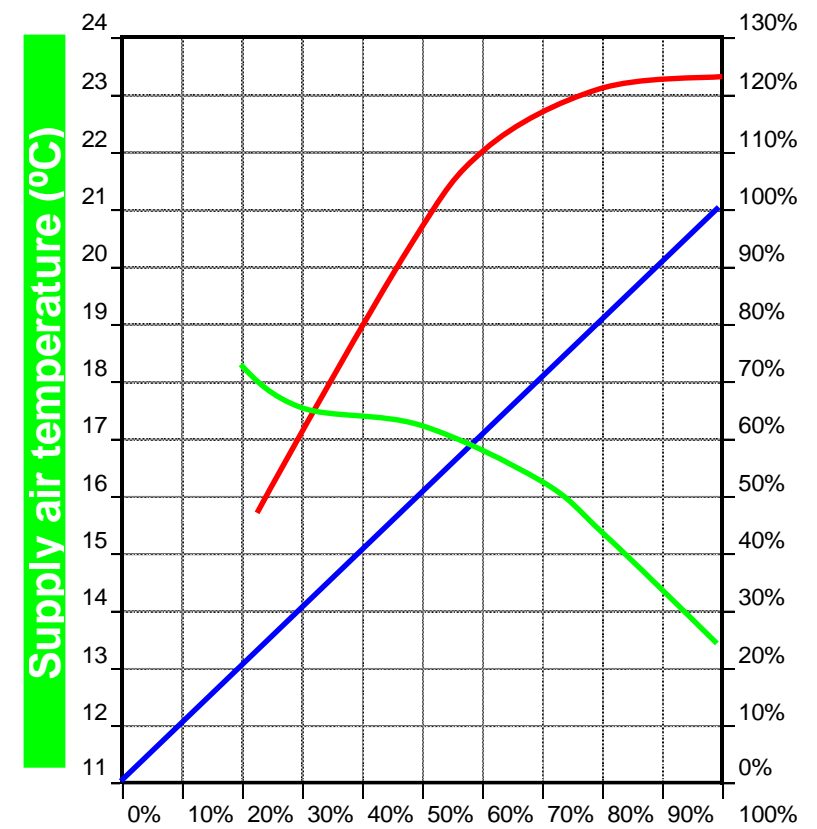
Induction VAV – Variation in Airflow

Standard VAV

Induction-VAV



Primary air volume



Primary air volume

Induction VAV System

The Benefits

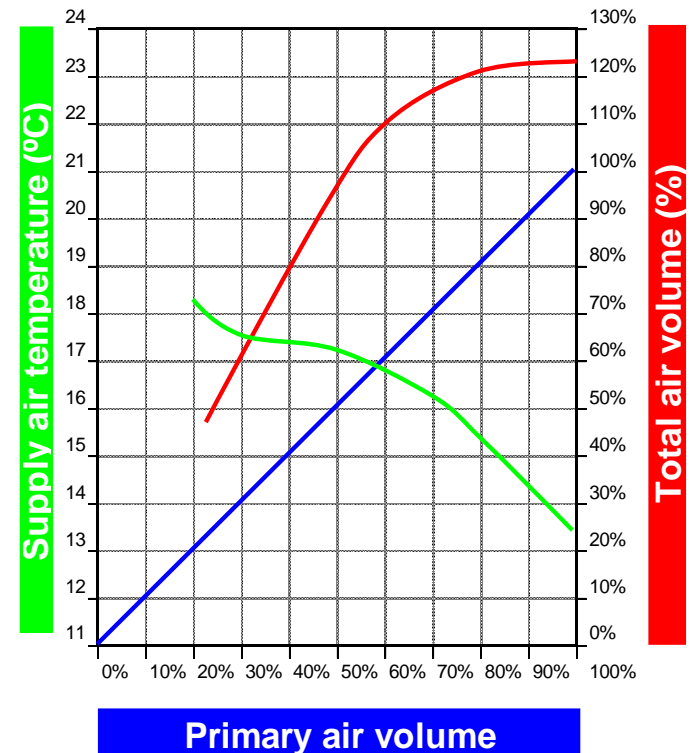
- Improved Air Distribution and Comfort
- System operates down to 20% airflow
- Less Primary Air required
- Recovery of the lighting energy in the induced air with return air lighting fixtures.

Induction VAV System

The Benefits

Improved Air Distribution

- System operates with more air and higher supply air temperature at reduced loads:
 - Good air distribution at all load conditions.
 - Avoids stagnant corners and ensures continuous flushing of air conditioned space even at all load conditions.
 - Higher air temperatures reduce risk of cold drafts



Induction VAV System

The Benefits

System operates down to 20% airflow

The system operates down to 20% airflow without cold air dumping from the air diffusers. This allows a lower minimum airflow setting and

- Fan energy savings between 50% and 20% load
- Delayed onset of heating

20% Primary airflow = 50% Total airflow

Induction VAV System

The Benefits

Less Primary Air required

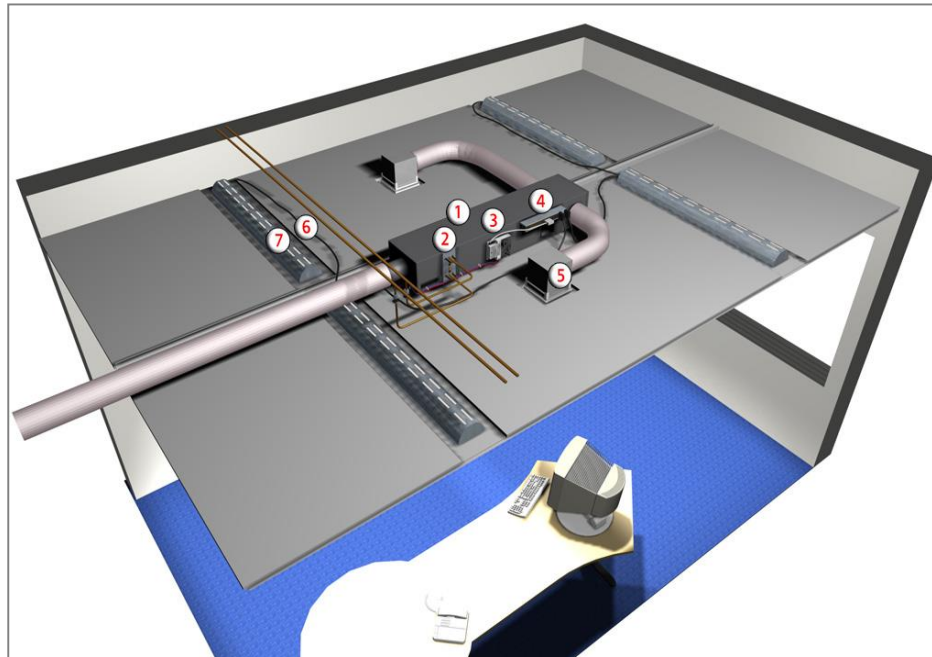
The system operates with lower primary air temperature and less primary airflow - 30% reduction

- Fan energy savings
- Smaller AHU's and ducting
 - Cost Savings
 - Space Savings

Induction VAV System

The Benefits

Recovery of the lighting energy in the induced air when return air lighting fixtures used.



1. Induction VAV Terminal
2. Reheat Coil (Option)
3. LON/BacNet VAV controller
4. LEM Lighting module (Option)
5. Diffusers
6. Wiring
7. Light Fixtures

Induction VAV System

Other Benefits

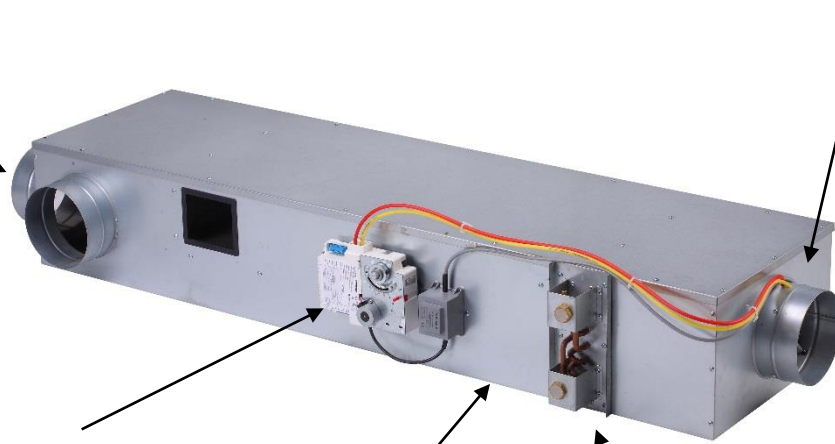
- Factory programmed controls for plug and play installation
- Very low noise – Induction terminal attenuates primary air noise.
- No air balancing required – Air quantities preset.
- Practically no maintenance required for induction terminals

Induction VAV System

Product Features

Optional multiple connector air outlets.

Pressure independent control using patented Flo-Cross airflow sensors



Induction system operating with factory programmed a Digital Actuator Controller

Optional electric or hot water heater

Casing with acoustic lining to minimise noise breakout.

Induction VAV System

Flo-Cross Sensor



- Allows operation independent of inlet air pressure
- 2 x 12 points averaging and signal amplification can measure the airflow independent of inlet pressure to an accuracy of better than 5%
- Eliminates the need for system air balancing

Induction VAV System

Digital Actuator & Controller



- Pressure independent control using Flo-Cross airflow sensing
- Programmable for Minimum and Maximum Airflows and controls any airflow in between in response from demand from room controller or BMS.
- Programmable Heating cycle
- BACnet and LON compatible

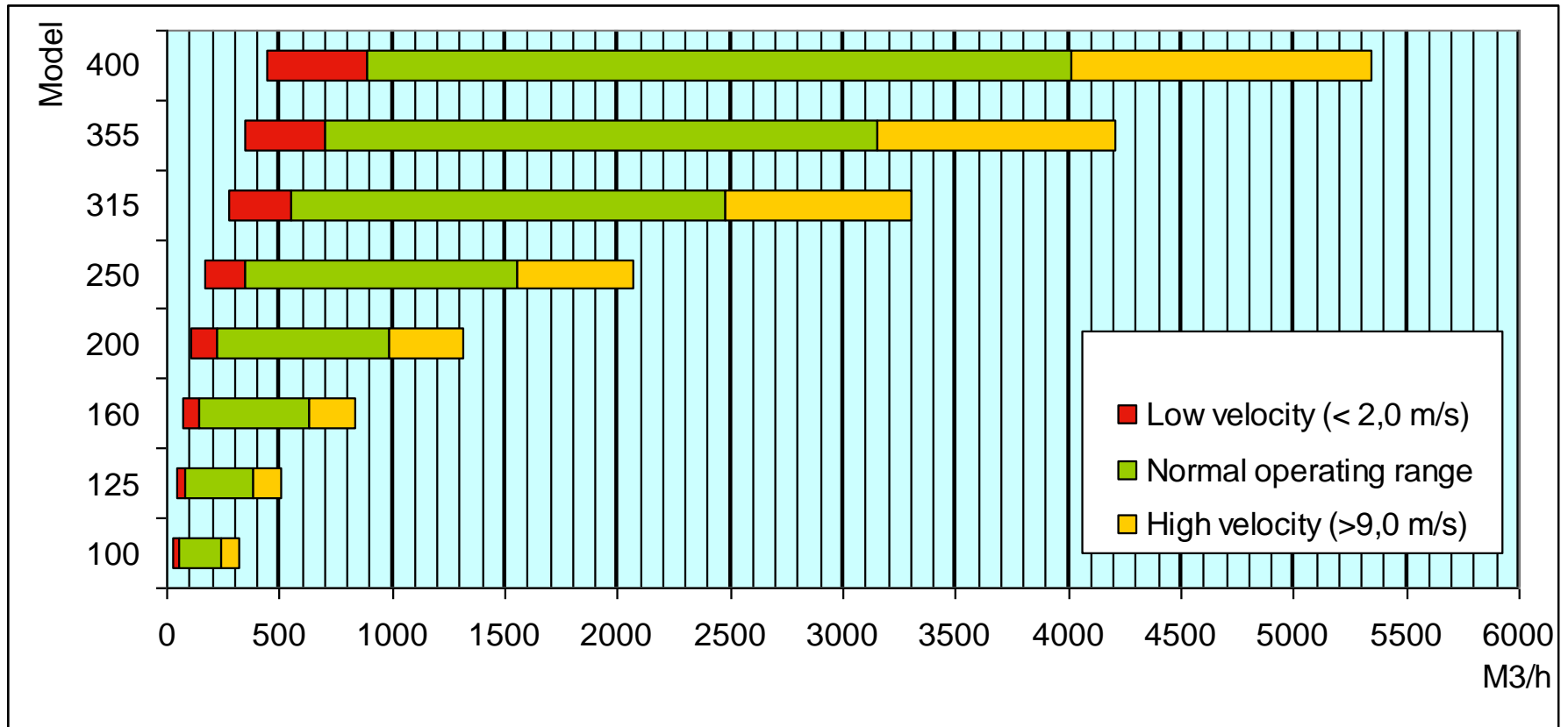


Room Controller



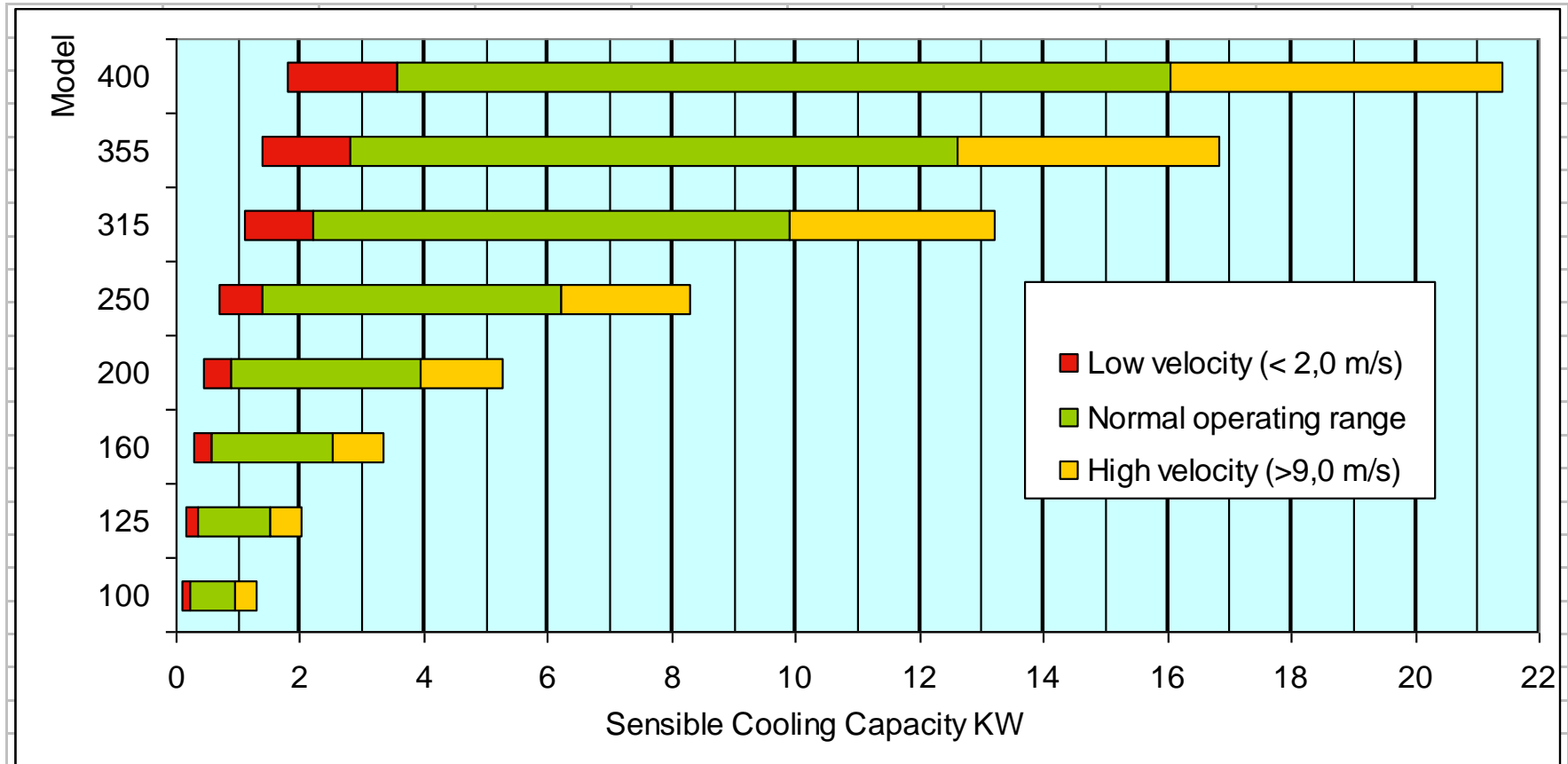
Induction VAV System

Model sizes – Capacity by Primary Airflow



Induction VAV System

Induction VAV – Sensible Cooling Capacity KW



Based on assumption that room minus primary air temperature difference equals 12 deg C

Induction VAV System

Induction VAV - Applications

Where ever there can be large variations in cooling load and good temperature and humidity control is important:

- Offices
- Residential
- Hotels
- Restaurants
- Public Buildings

Induction VAV System

Induction VAV - Summary

- All the benefits of VAV plus excellent air distribution and temperature control at all load conditions.
- Reduced costs and space for Air handling units and ducting.
- Operating Cost Savings with less fan energy and heating

Induction VAV System

Barcol-Air - Low Energy Air Conditioning Systems

From its beginning Barcol-Air has specialized in designing, developing and realizing the perfect indoor thermal climate with commercial air-conditioning systems. Working closely with clients, consultants, architects and research organizations, Barcol-Air seeks to create an indoor climate which offers an optimum in terms of comfort and energy efficiency.

The company has grown its reputation and business worldwide operations based on their expertise in commercial air conditioning system and component design with a focus on advanced low energy systems particularly:

- Variable Volume Systems
- Induction VAV
- Chilled Ceiling Systems.
- Chilled Beam Systems.

History

HC Barcol-Air's origin dates back to 1932 when the BARBER COLMAN COMPANY (USA) started to develop central air conditioning air distribution products and control systems.



In 1982 BARBER COLMAN established Barcol-Air as their European subsidiary. From that day on Barcol-Air have expanded their capability and operations throughout the world with an on going commitment to excellence in air conditioning product and system design.



Induction VAV System

Research and Product Development

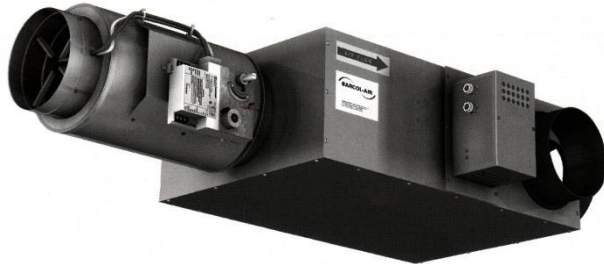
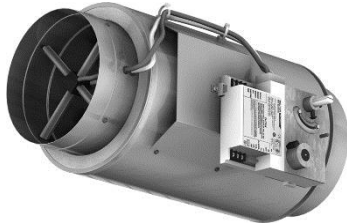
Research into improving our indoor environment with low energy systems and the development of new products are key to the ongoing development of HC Barcol-Air's leadership capability.



For a full understanding of the thermodynamics of our living environment the most effective approach is to use full scale testing with room configurations and constructions identical those in the real world. This is why Barcol-Air uses full scale climate testing rooms that can accommodate actual size application mockups and simulate not only the indoor climate but the external climate and its effect on the building structure and the air conditioning system operation.

Induction VAV System

Other Variable Air Volume Terminals



Type NA/NB Round VAV terminal

- Pressure Independent with Flo-Cross airflow sensing
- Inlet connector from 100mm to 400mm diameter
- Airflow 100 to 5,000m³/h
- Factory installed and calibrated Digital Actuator Controller - BMS System compatible
- Optional hot water or electric heater
- Optional multiple connector air outlets

Type NK/NL Rectangular VAV terminal

- Pressure independent with Flo-Cross airflow sensing
- Single or double wall construction
- Inlet/outlet sizes 350mm x 300mm to 900mm x 450mm
- Airflow 1,500 to 15,000m³ /h
- Airfoil damper blades
- Factory installed and calibrated Digital Actuator Controller - BMS System compatible
- Optional hot water or electric heater
- Optional multiple connector air outlets