

Monodraught

COOL-PHASE® Passive Ventilation System

COOL-PHASE is a low energy, cooling, ventilation and heat recovery system that has been shown to reduce energy consumption by up to 90%, as well as creating a fresh and healthy indoor environment. The system uses a thermal energy store utilising a phase change material (PCM) in combination with intelligently controlled ventilation to actively ventilate, cool and heat the building.

The material inside each unit has an equivalent thermal mass of 32 tonnes of concrete, which is charged and discharged by passing air over a heat exchanger. COOL-PHASE is a unique offering in that it is able to meet building regulation requirements for thermal comfort, ventilation and energy efficiency in a single easy to retrofit system. Since no compressors or hazardous coolants are used, the system does not fall foul of the servicing requirements and statutory checks required of air conditioning systems, further reducing running costs.

Operating Modes

COOL-PHASE uses a PCM thermal energy store in combination with intelligent low energy mechanical ventilation to actively ventilate, cool and heat the building. The material inside each unit has an equivalent thermal mass of 32 tonnes of concrete, which is charged and discharged by passing air over a heat exchanger.

In the summer COOL-PHASE takes advantage of the difference between night and day temperatures. At night, cool outside air is passed through the heat exchanger releasing the heat built up during the previous day and recharges the thermal energy store. As temperatures rise during the following day, warm air is passed through the heat exchanger to provide cooling. The total cooling provided is a combination of the intelligent use of the thermal energy stored within the unit, the effects of free cooling, and night time ventilation.

In winter COOL-PHASE works in reverse, trapping waste heat and using it to warm up cool fresh air entering the building.

COOL-PHASE works all year round to ensure a fresh and healthy environment, monitoring temperatures and CO₂ levels to automatically determine how much ventilation or cooling is required.

iNvent (Intelligent Natural Ventilation Control)

The iNvent system is a natural ventilation management system for up to 4 Zones of SOLA-BOOST or WINDCATCHER systems. Utilising a seasonally adjusted proportional control based on temperature and CO₂.

Designed specifically for the control of natural ventilation systems, iNvent brings with it economies in design, supply, and installation. The iNvent systems simplifies the electrical wiring requirements and greatly reduces on site labour time thereby reducing associated clients costs.

iNvent system key features:

- Manufactured using automated PCB construction & Microprocessor technology along with 100% testing to ensure reliability
- Each unit can control up to four separate zones
- Connections for two temperature sensors to each zone plus rain & CO₂ sensors
- Monodraught's field proven ventilation strategy with four seasonal adjusted profiles
- Built in time clock with five year battery back-up
- Short circuit protection with reset
- Supports manual override facility
- Built in BMS fault signal alarm
- Heating interlock / occupancy facility
- Competition key switch override facility
- Supports remote Monodraught individual wall mounted controllers, which include a temperature sensor & key pad manual override to each zone
- Interconnection with fire alarm to automatically close dampers on fire alarm activation

