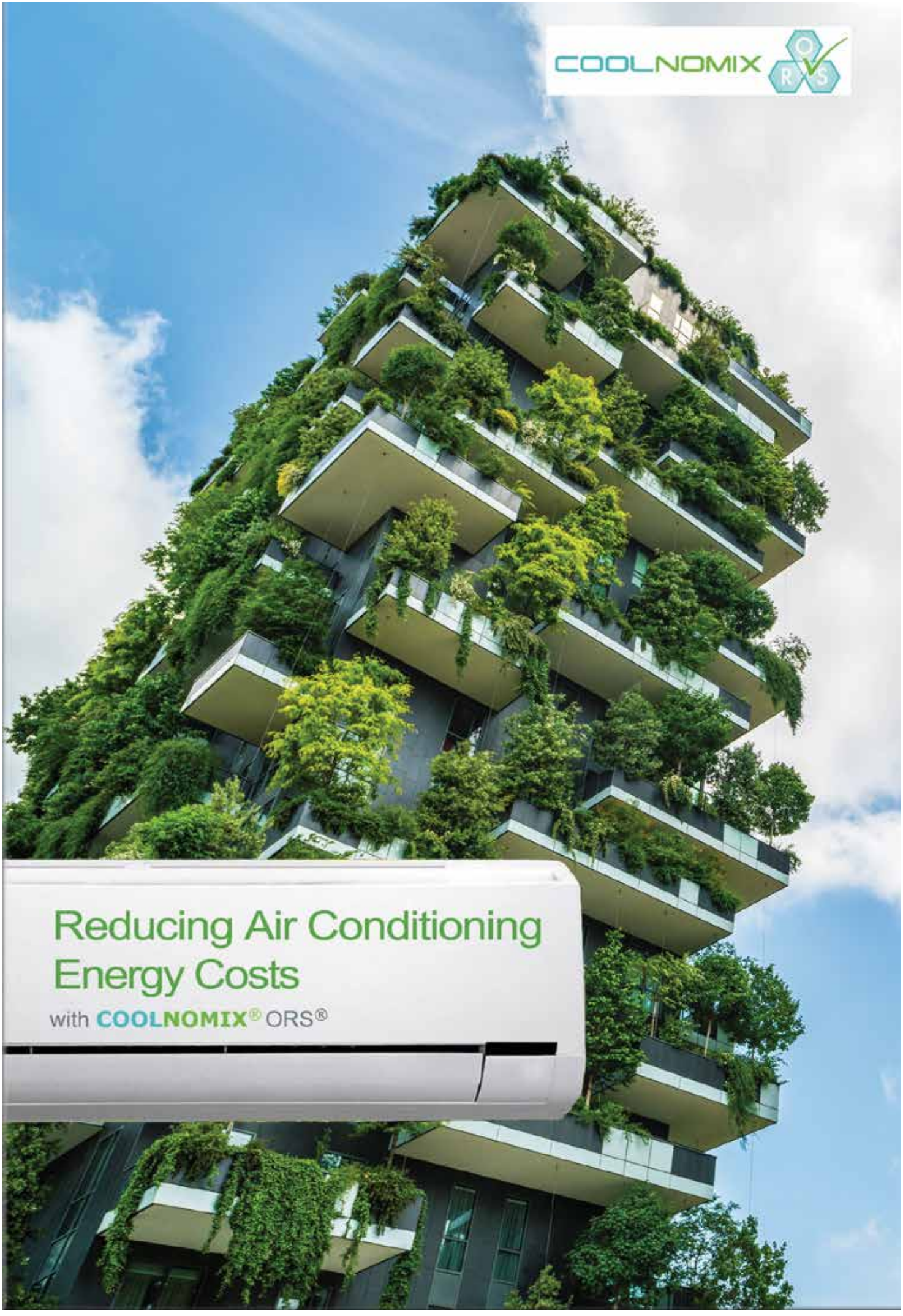

COOLNOMIX
Reducing Air Conditioning Energy Costs
with COOLNOMIX® ORS®

OPTIMISED REFRIGERANT SUPPLY (ORS®)

Our **COOLNOMIX®** solution utilizes innovative, ground-breaking **ORS®** energy optimization technology to enable a significant reduction in energy consumption on any direct expansion (DX) air conditioning system. The first devices to implement our patented **ORS®** technology are **COOLNOMIX® AC-01™** and **AR-01™** as compact, maintenance-free add-ons to the indoor component of air conditioning and refrigeration units. These **COOLNOMIX®** units save money and reduce global warming with no compromise on comfort. Average savings are an astonishing **30%**!

BENEFITS



Energy Cost Optimization

Reduced Operational Costs

Low Capital Investment

Improved Temperature Stability

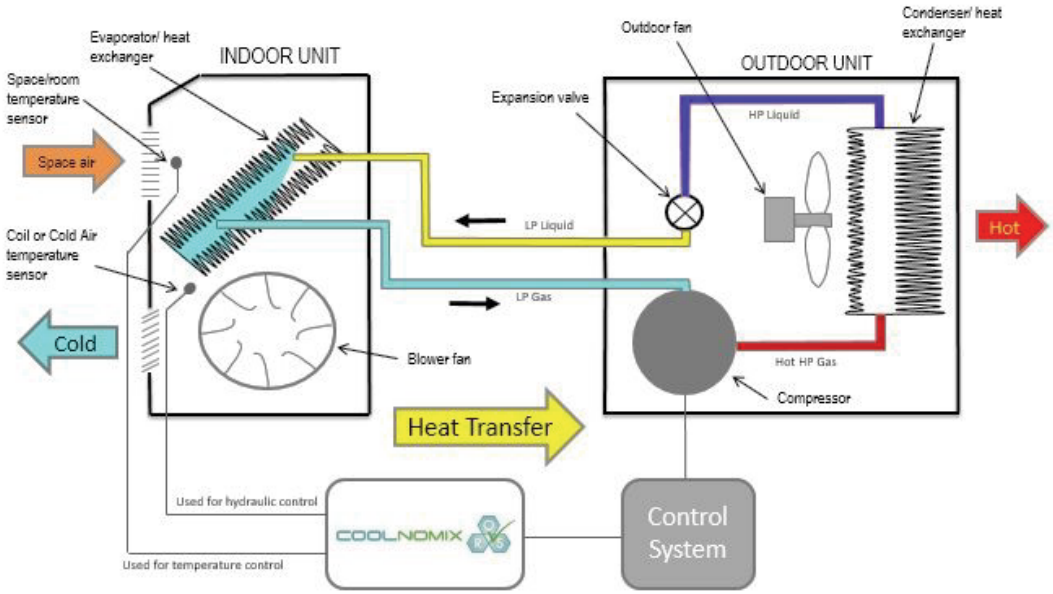
Reduced Dripping and No Icing Up

TECHNOLOGY REVIEW

In addition to the traditional feedback control from a thermistor measuring the return air temperature, **COOLNOMIX® ORS®** technology also monitors the temperature of cool air as it exits the evaporator coil.

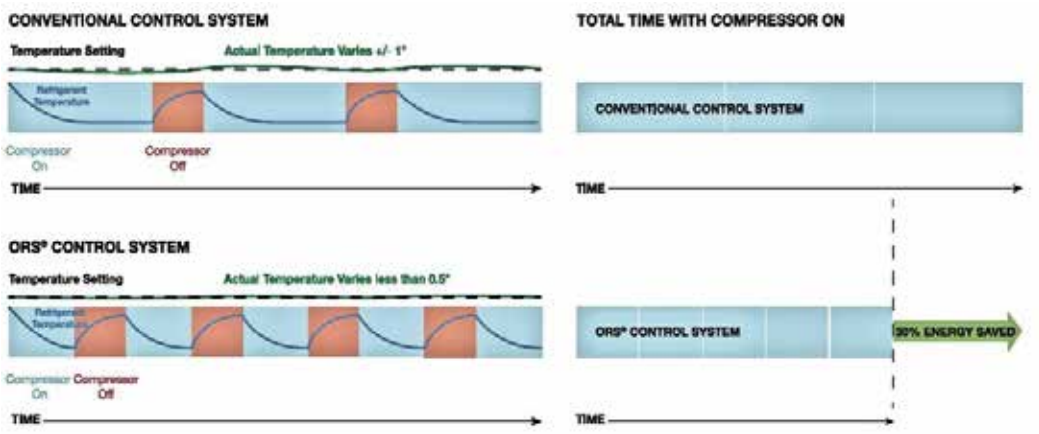
This enables the **COOLNOMIX® ORS®** based thermostat to apply a complex algorithmic model which signals to the air conditioner control system that cooling is no longer required before the air conditioner itself would reach that decision.

COOLNOMIX® CONFIGURATION



COOLNOMIX® CONFIGURATION

The diagrams below indicate how the **COOLNOMIX®** energy optimization thermostat uses its dual sensors to detect when compressor operation is no longer required (i.e. when sufficient cooling capacity is already available). This enables the compressor (which draws the lion's share of the power consumed by a DX air conditioner) to be run for shorter periods of time. This result is significantly reduced energy consumption and improved temperature stability.



FAQ

How can COOLNOMIX® deliver such energy savings?

COOLNOMIX® optimizes the operational run-time of the cooling system compressor. Since the compressor accounts for ~95% of the power consumption of a cooling system, reducing its run-time can deliver very large savings.

COOLNOMIX® employs two temperature sensors - one to measure the room temperature, the other to measure the cold-supply air temperature. The latter is used to determine when the hydraulic work of the compressor is completed - when the refrigerant gas is fully compressed. Once this reservoir of cold-supply has been created, **COOLNOMIX®** signals the manufacturer's control system to stop (non-inverter) or slow down (inverter) the compressor until further hydraulic work is needed.

Does the increased stop-start of the compressor introduced by COOLNOMIX® damage the compressor?

Our internationally patented Optimized Refrigerant Supply (**ORS®**) process which is incorporated in **COOLNOMIX®** includes specific protection against too frequent stop-start of the compressor and assurance that every re-start is always a soft-start. As a result, there is no adverse effect on the operational life of the cooling system compressor.

What about temperature stability when using COOLNOMIX®?

ORS® incorporates a priority on delivering the required room/space temperature - comfort will not be compromised in order to achieve savings. In fact, **COOLNOMIX®** typically improves temperature control – the dual temperature sensor approach usually limits room temperature variations to 50% of that experienced without **COOLNOMIX®**.

Is the air-conditioner warranty invalidated by retrofitting COOLNOMIX®?

COOLNOMIX® simply acts as an intelligent thermostat, sending only 'cooling required' or not required' signals to the air conditioner control system which remains in control.

It doesn't interfere with the cooling system control board which is left intact and operates as normal.

On what type of cooling systems can COOLNOMIX® be deployed?

COOLNOMIX® delivers energy savings on any direct expansion air conditioning (DX) system with fixed temperature settings. **ORS®** is a retrofit package that can be deployed on any of the below common systems:

- Split type AC units
- Package type AC and refrigeration units
- VRV/VRF/Inverter type AC and refrigeration units
- DX type computer room AC (CRAC) units

Note: Major exclusions are centralized chiller-based AC and deep freeze systems.

AGILE8 Consulting Limited, owners of **COOLNOMIX®** can assist you with any or all the following services.



Assess viability of **COOLNOMIX®** installations and estimate potential savings.

Small scale installation together with precise power consumption measurement for both baseline and live operation mode.

Planning, logistics, installation and project management of medium to large scale/nation-wide roll-outs.

First level response to any support issues or questions, coordination of warranty/maintenance requests, periodic verification of savings etc.

SAMPLE CUSTOMERS

7-ELEVEN, McDonald's, HSBC, Hutchison Telecom, Shangri-La hotel

COMMON ENVIRONMENTS

- Commercial and Retail bank branches
- Supply chain and logistics environments
- Manufacturing – factory and pharma operations
- Retail - Convenience stores; Supermarkets
- Hospitality – Hotels, Restaurants
- Healthcare – Hospitals and Nursing Homes
- Telco – Data centres, fixed line and wireless base stations.

ABOUT US

AGILE Consulting — Advantage through Innovation

AGILE8 Consulting Limited was established in 2005, initially as a business process and IT consulting organisation. Subsequently, the organisation has been involved in the design, development and patenting of 3 generations of energy optimization solutions for air conditioning and refrigeration. Our company has a keen interest in helping organisations with Corporate Social Responsibility (CSR) commitments to contribute to a reduction in global warming and energy consumption and to the corresponding benefits to our planet.

Based in Hong Kong, our British designed and Hong Kong developed **COOLNOMIX®** and **ORS®** technologies are the first of a range of energy optimization solutions to enable our distribution partners and clients to reduce their energy consumption and associated costs, while contributing to their own CSR goals and commitments.

THANK YOU

PT. ANUGERAH MAKMUR MAHATARA

Rukan Permata Senayan, Blok A-29
Jl. Tentara Pelajar Kebayoran Lama - Jakarta Selatan
Telp : +62 812 6085 2832