

Retail Solution



Complete package solution for
an invigorating indoor climate
for retail premises

Swegon

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Als het om lucht gaat.

**AUERHAAN**
KLIMAATTECHNIEK

Comfort solutions that create well-being for both customers and staff

The main financial key figures for an investment in a retail project is a comfortable indoor climate, which means customers stay longer in the store, limited operating costs and a relatively simple system with low investment costs.

The Swegon Retail Solution makes an annual operating cost saving of 35-50% possible, despite the investment being in the same range as other available systems.

The Swegon Retail Solution is a solution that ventilates, heats and cools via air. Instead of a conventional CAV solution, a smart DCV solution is used. The air flow is usually sized according to the cooling load. Normally a maximum of 40-70% of the total air volume is needed to heat and up to 30% for fresh air. During opening hours, a desired mixture of fresh air and recirculated air is used. The mixture, air flow and temperature are demand-controlled and regulated by air quality and temperature sensors in the store.

The heating and cooling requirement is satisfied by a frequency-controlled, reversible heat pump CELEST+/EPSILON ECHOS+, which makes the store independent of external heat sources such as district heating and gas. This leads to a considerable saving in installation costs, operating costs and space. Cooling and heating temperatures are continuously optimised through the SMART Link functionality along with the GOLD air handling unit.

Air is distributed at the front of the store, by the cash registers, where the demand on comfort is the greatest. The air is under tempered for a cooling demand, and over tempered for a heating demand. The air is distributed demand-controlled for an optimum indoor climate. Extract air diffusers are placed at the rear of the store. In this way, a good air flow throughout the premises is produced. Alternatively, an air transfer unit can be used to take extract air via the adjoining store, which then receives its heat retention of at least 14 degrees guaranteed. If the GOLD air handling unit is placed free-drawing in the store room, there is no need of ducting for the extract air.

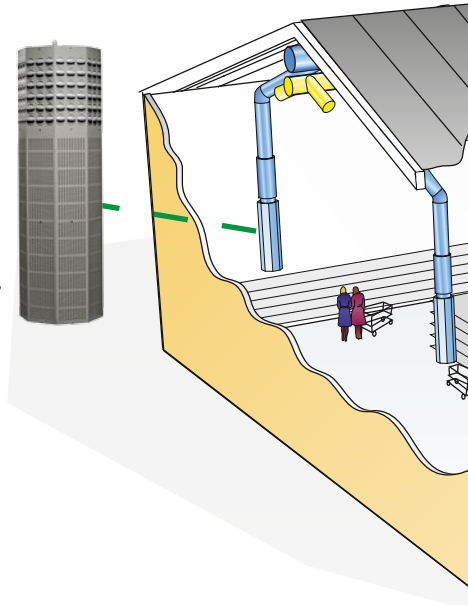
The GOLD air handling unit is equipped with the sorption rotor, RECOsorpctic for the best heating and cooling recovery. The sorption rotor also counteracts the store drying out during the winter.

AIRA air curtains are used as climate separators to prevent the outside air from entering through entrances and loading bays.

The motorized supply air diffuser **FALCON Ceiling** enables a varied distribution pattern for blowing in air at different seasons and operating conditions.



BOOSTER, with different nozzles to vary the distribution pattern when blowing in air. Small nozzles for heat and larger nozzles, with the distribution system VARIZON®, for cooling.



"35-50% in annual savings with the same investment"

Individual stores or shopping centres

Retail Solution is based on independent stores, or decentralised solutions, where the stores are part of a larger building. The stores have individual air production and can have its own or a common heating/cooling production.

When selecting central air production in a shopping centre, the GOLD air handling unit must be pressure-controlled where each store premises is controlled via the WISE system. Each store then becomes its own zone or room, where the zone and room dampers regulate the required air flow.

The dampers are controlled by a central Super WISE, which regulates so that the right temperature and flow are obtained in each store.

For larger premises a mixture of air handling units GOLD RX and SD is usually used.

Special requirements and conditions

Large internal loads

Some stores have large internal loads, for example due to extensive display lighting, plug-in refrigerated display cases or other products that generate heat, such as televisions or the like. In these stores, the airborne heating system can be supported by extra cooling distribution in specific zones through e.g. PARASOL comfort modules.

Night heat retention and summer night cooling

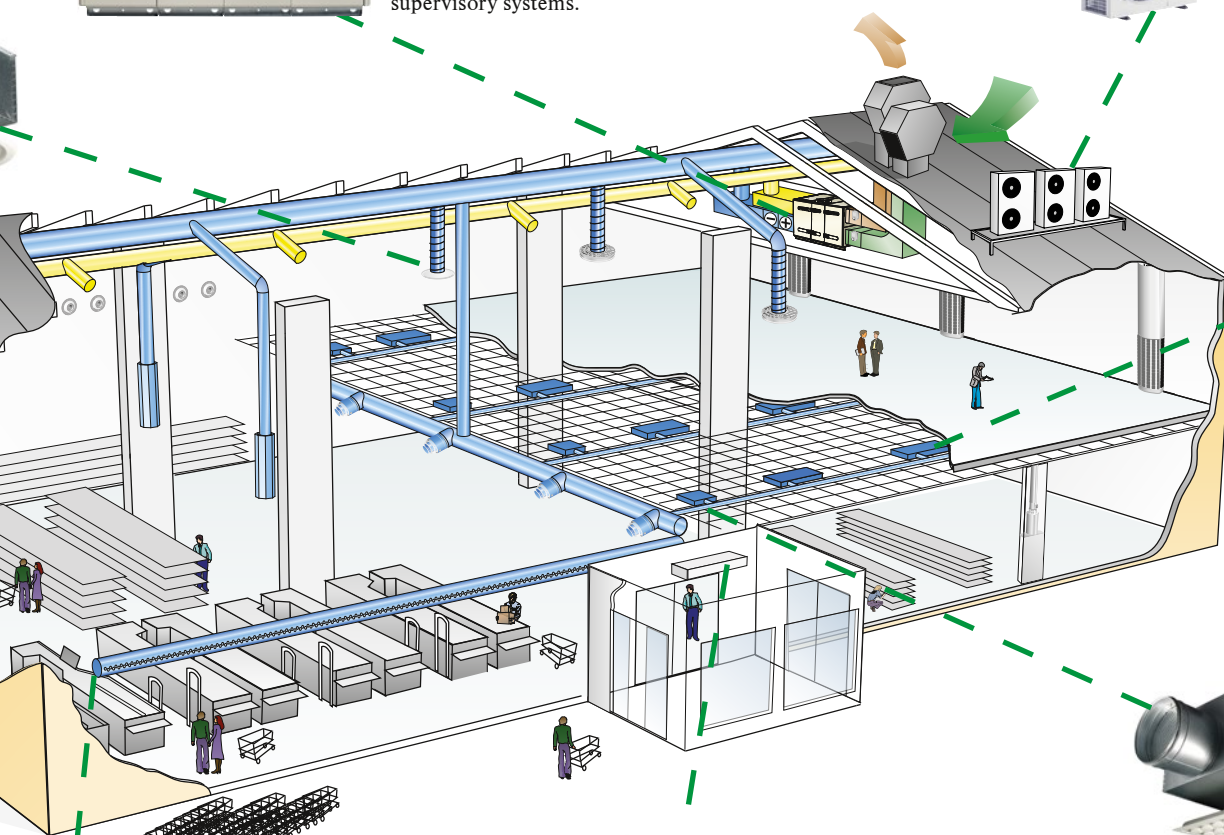
At night the ventilation system is run in intermittent mode, usually against a night reduction of 2-3 Kelvin, where the internal air recirculation in GOLD is utilised for heat retention with 100% recirculated air. In the daytime, the ReCO₂ function is used for the desired mixture of outdoor air and recirculated air.



GOLD, is one of the most energy efficient air handling units on the market. The integrated control equipment has every function imaginable for air handling and is ready for communication with most existing supervisory systems.



CELEST+/EPSILON ECHOS+ a reversible heat pump for heating and cooling production. Available in both direct expansion and liquid cooled.



PARASOL, is a comfort module for cooling, heating and ventilation that regulates via the **CONDUCTOR** control unit and actuators.



Supply air diffuser **EAGLE Ceiling**, with a nozzle configuration that enables both heated air and cooled air.

AIRA, air curtain that acts as a climate separator between two temperature zones, at entrances and loading bays, to prevent draughts or heat leakage. Available with electric and waterborne coils.



IBIS, disc duct air diffuser for the supply air has a diameter that is compatible with standard duct sizes. **IBIS** is equipped with aerodynamically designed nozzles that have a high induction capacity.

"Food-Retail"

Stores that handle food usually have refrigerated counters with centrally produced process cooling. Excess heat from this process can be used as an extra source of heat between the **GOLD** air handling unit and reheaters (linked to a reversible heat pump). On account of the extreme cooling of the premises, it is often the heat requirement that is used for the maximum design air flow. As an alternative to transfer air towards the store, in the summer extract air can be taken close to the refrigerated displays for cooling recovery. In the winter extra air can be taken from the warm zone, directly under the ceiling for heat recovery.

Ventilation for secondary areas

For secondary areas such as staff facilities, storage and the like, a minimum of fresh air is ensured through the constant flow dampers.

Roof heights influence the choice of air diffuser

Smaller shops usually have a ceiling height of between 3-5 metres, while larger shops often have ceiling heights of between 6-8 metres. Diffuser selection is important as these must supply over tempered air in the winter and under tempered air in summer.

For lower ceiling heights, passive disc diffusers, with double functional disc setting, can be used for example **EAGLE**, **COLIBRI** or **IBIS**. For higher ceiling heights, active diffusers, such as **BOOSTER** or **FALCON**, with a motor can be used. Guaranteed draught-free distribution of cooling in the summer, and efficient heating of the comfort zone in winter is then possible, despite a permitted temperature difference of 8-10 Kelvin.

As large temperature differences are permitted, an approximately 20% smaller **GOLD** air handling unit can be installed than otherwise would be possible.

References



Several Auchan stores in various locations in Poland



Debenhams; UK



Over 100 LIDL stores in Scandinavia



Allum shopping centre; Sweden



80 or more petrol stations in Scandinavia; including Shell

- IKEA; Sweden, Poland, Hungary, Russia, Britain, etc.
- AHOLD/ICA Kvantum; Sweden
- Elgiganten; Sweden
- Adidas; Sweden
- Maxidom DIY stores; Russia, etc.
- Tax-free terminals at several airports in Europe
- Airport shops in Germany
- 35 Coffee House; Russia
- 3 Computer World shopping centres in Russia
- 15 Kemerovio shopping centres across Russia
- Car Dealers; BMW, Mercedes, Volkswagen, Ford and others.
- Clothing stores: H&M, Bjorn Borg and others across Europe
- IKANO properties Kungens Kurva; Sweden
- Pharmacies across Scandinavia
- ... and many more