

LAMBDA Zero

Packaged Rooftop

Air to Air Heat Pump/Air Conditioner
20÷70 kW

BlueBox
by Swegon

LAMBDA Zero

Self-contained
air to air
heat pump with
natural refrigerant
R744

Use of Free Energy

Enthalpic Free Cooling
Free Heating opportunities

Enhanced Efficiency

Inverter Plug Fans
Inverter compressors
Double Skin Sandwich panel
Optimization of refrigerant circuit for transcritical operation

Air Quality

Various filters options (from G4 to F9)
Fresh air management with Air Quality Sensors
Humidity management for the best comfort all year long



Smartness

Advanced Variable Air flow solutions
Smart Dampers Management
Adaptive Defrost
Cascade control
Floating Set point compensation
Remote Web control

Re-Use of Waste Energy

Thermodynamic heat recovery
Cross Flow Heat recovery

+R744

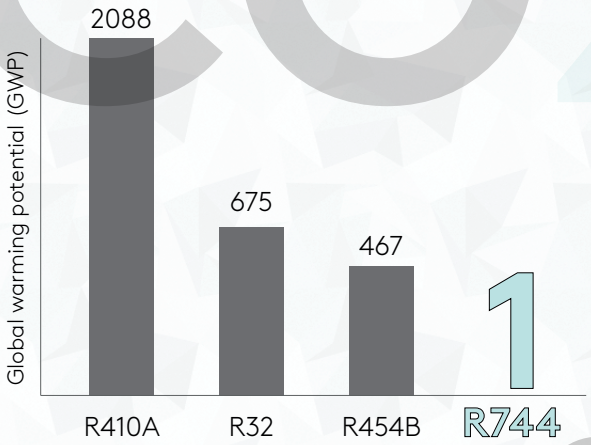
-CO_2 emissions

Flexibility & Configurability

Full Recirculation
Fresh Air management
Humidifier
Auxiliary Heating options
Flexible air return and delivery layouts

MISSION ZERO EMISSION

+R744 ▸ -CO_2 emissions



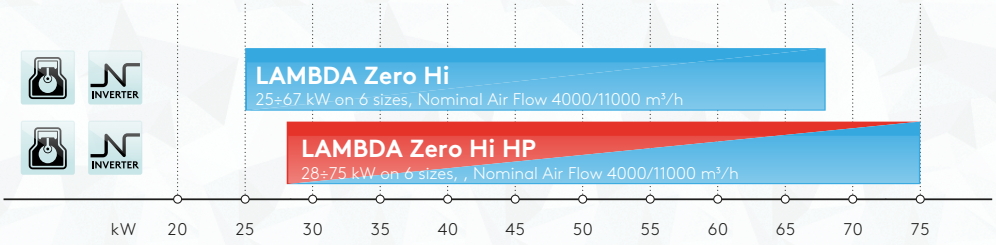
(*) GWP (AR6), pursuant to IPCC VI, evaluated over a span of 100 years.

SUSTAINABLE CHOICE
- No environmental impact : OPD = 0, GWP = 1
- PFAS Free

RELIABLE CHOICE
- Not Flammable (A1 classification)
- Ideal for air to air applications , no flammability risk in occupied spaces

SMART CHOICE
- No carbon tax or refrigerant tax
- Lower refrigerant price compared to F-gases

CAPACITY | EFFICIENCY



SEER UP TO **5.24**

SCOP UP TO **3.91**

Reciprocating Compressors

Dc Inverter

Cooling Only (A27/A35)

Heating & Cooling (A20/A7)

EN14511

APPLICATIONS

LAMBDA Zero is a real **All in One** solution for those who has space constrains or specific building needs.

Different Layouts ▸ Flexible & Adjustbale air intake and delivery positions

Strongly Variable Heat Load ▸ Optimize Consumption in any conditon

Energy Bills ▸ Efficiency far above minimum Tier 2 treshold

Strongly Variable Occupancy ▸ Multiple Variable Airflow Solutions



RETAILS | EXIBITION CENTERS | MALLS | WAREHOUSE INDUSTRIAL BUILDINGS

CONFIGURABILITY



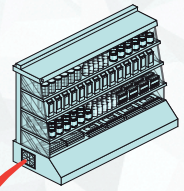
BASIC
Full Ricirculation

FC2S
Fresh Air Intake

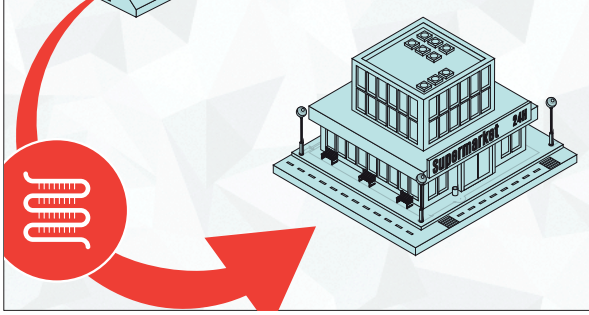
FC3S
Intake & Rejection

RS4S
Heat Recovery to recover
the whole energy from the exhaust air

HEAT RECOVERY



FROM
REFRIGERATED CABINETS
Re-use of waste heat energy fromcabinets to warm the environment for free.



THERMODYNAMIC

Take advantage of the exhaust air to improve condensation in summer and evaporation in winter.

Cooling
External T°: 35°C I Return T°: 27°C

+5% EXTRA CAPACITY/EFFICIENCY

Heating
External T°: 0°C I Return T°: 20°C

+10% EXTRA CAPACITY/EFFICIENCY
DEFROST CYCLE REDUCTION

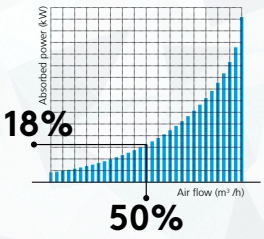
ENERGY SAVING

EC PLUG FANS

ELECTRONICALLY COMMUTATED BRUSHLESS MOTOR AS OPTION

Reduced energy consumption and noise, self-adaptation to changes in heat load, air volume or static pressure.

USER SIDE



SOURCE SIDE

UP TO
8%
SEER & SCOP
IMPROVEMENT

Hi VERSION DC INVERTER

ALTERNATIVE COMPRESSOR

- Higher efficiency at part load
- Continuous modulation according to the load
- Accurate temperature control and stability

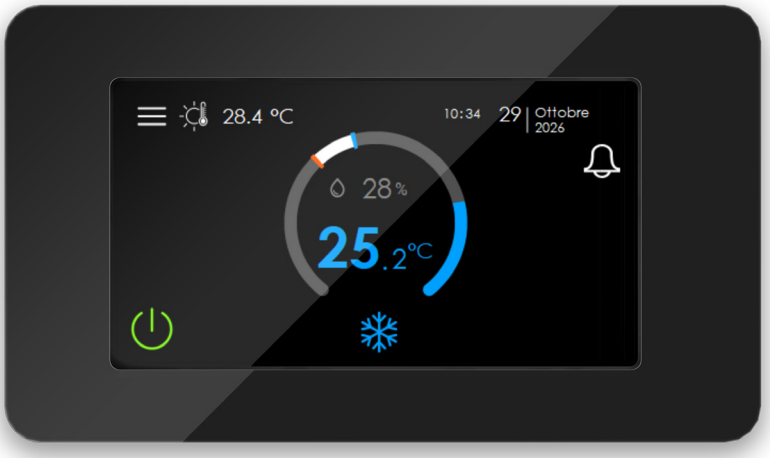
ENERGY SAVING

UP TO
30%
HIGHER **SEER**

UP TO
10%
HIGHER **SCOP**

(compared with standard alternative compressor)

THE CONTROL PLATFORM FOR AIR TREATMENT

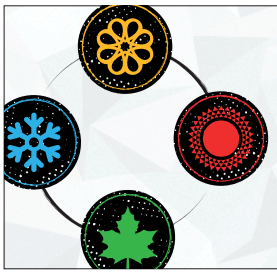


Simple & Immediate Human Machine Interface

Standard Monitoring Solutions
Serial Port Modbus RS485 Ethernet Port (RJ45): Modbus over IP, Web page

Unique Software Features

Dedicated transcritical cycle optimization algorithms based on neural network techniques



SET POINT COMPENSATION

Reach the perfect indoor climate comfort
Let the unit work with the maximum efficiency (lowest ΔT between indoor and outdoor conditions)
Minimize energy expenditure

BESPOKE SETTINGS

The unit can be programmed with the highest flexibility on the days and timings:

Boosted fresh air function
Wash an ambient opening up all the Fresh Air Dampers

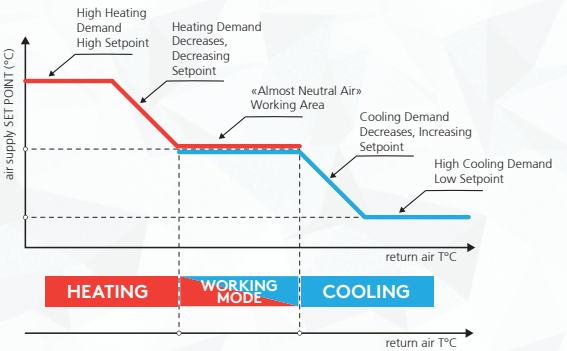
Pre-Heating & Pre-Cooling
A software routine can be programmed to quickly restore the comfort conditions closing the fresh air and pushing at the maximum cooling / heating sources



CASCADE CONTROL

Cascade Control means the opportunity **to act on the supply setpoint based upon the real heat load** thus **saving energy in most of the operating condition**.

Neutral Air means avoiding unrequired Cooling / Heating.



Feel good **inside**



Swegon

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