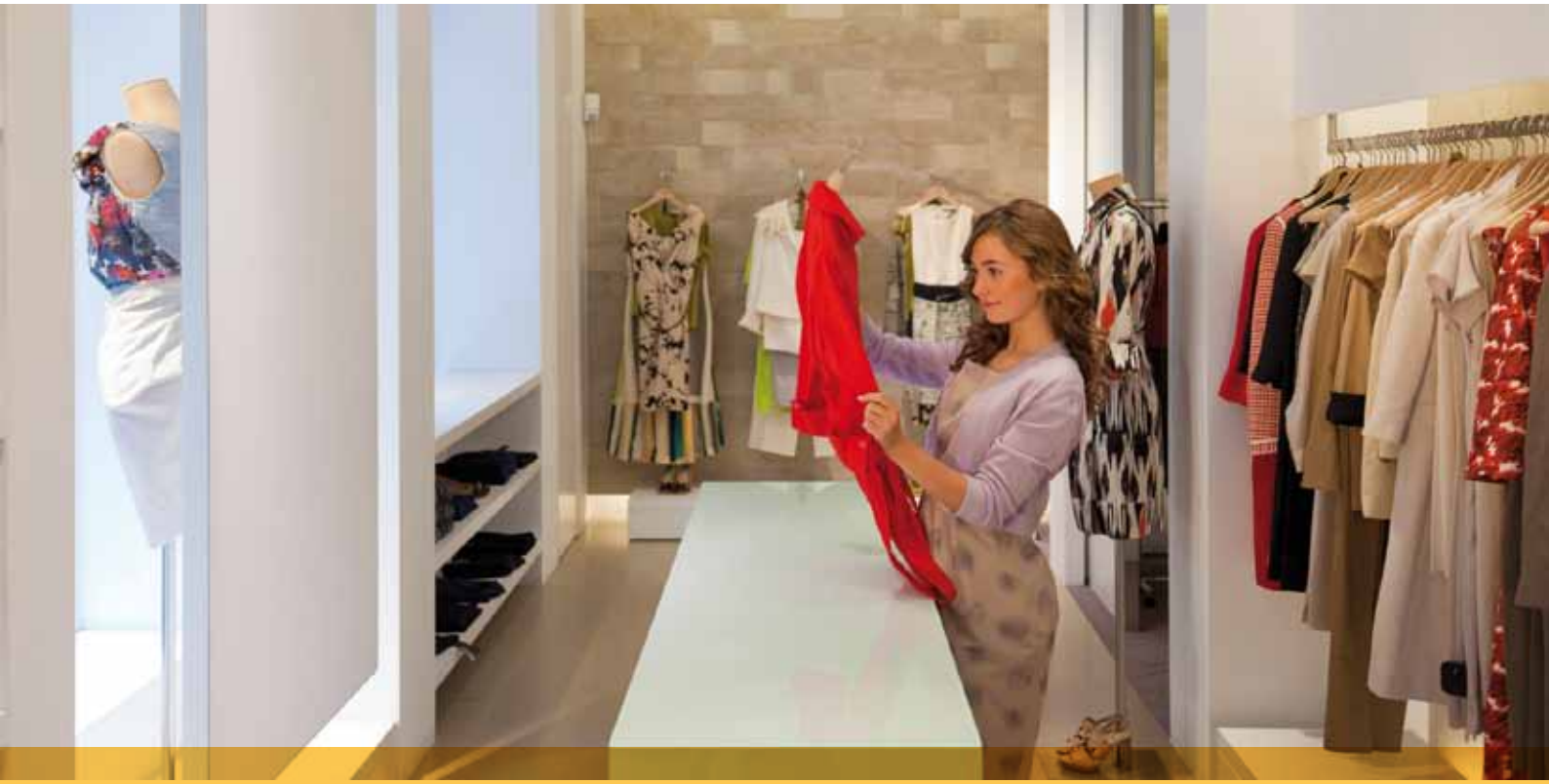
# Daikin leads the way to Seasonal efficiency

All Seasons
CLIMATE COMFORT

- Heating
- Air Conditioning
- Applied Systems
- Refrigeration



# Seasonal Efficiency:
## a monumental change

With European legislation* pressing energy users to drastically cut energy consumption, improve energy efficiency of buildings and homes, and meet the Commission's 20/20/20 targets, industry is looking at more appropriate ways to evaluate efficiency. Thus, the Eco-Design Directive (ERP) aims at reducing the environmental impact of products in the EU. To that end an implementing measure for air conditioners is under development and will introduce a new method for performance specifications – seasonal efficiency – in replacement of the current method of nominal efficiency, which has its limitations.

For Daikin, seasonal efficiency brings together two core ambitions: pushing innovation, and reducing the environmental footprint of our products. Being the first in the industry to design for optimal seasonal efficiency values, Daikin is once again pioneering high-performance cooling products that lower the impact on the environment... and on your wallet.

*EPB (Energy Performance of Buildings) Directive 2002/91/EC, ERP (Energy Related Products) Eco-Design Directive

## European action plan 20/20/20


**-20%**

$CO_2$ EMISSIONS
vs. 1990

**20%**

Share of
RENEWABLE ENERGY

**-20%**

PRIMARY ENERGY USE
vs. BAU*

*Business As Usual

By the year
**2020**

## No more nominal efficiency

Until now, the energy efficiency of cooling devices is measured in artificial, standardised conditions. For air conditioners, this is done at a constant temperature of 35 °C and at full cooling capacity. This results in the nominal energy efficiency, which is clearly not an accurate representation of real-life daily use.

# Seasonal efficiency in line with real-life performance

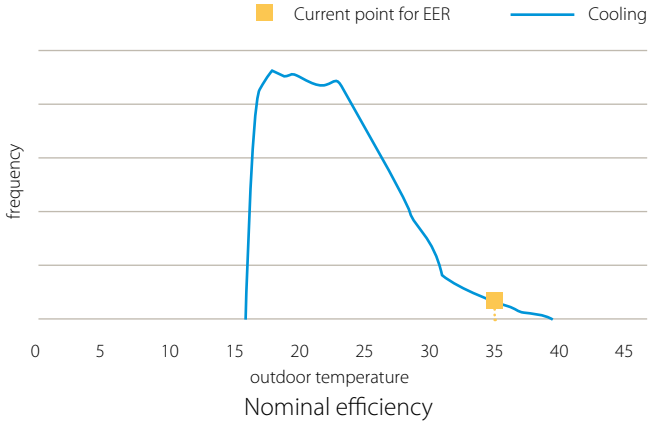
To correct this situation, a more complex calculation method – seasonal efficiency – is being developed simultaneously by the EU in ERP (PrEN 14825: inquiry version 2010). The major differences between seasonal and nominal calculation:

> Use of **several rating temperatures** for cooling and heating instead of one nominal temperature.

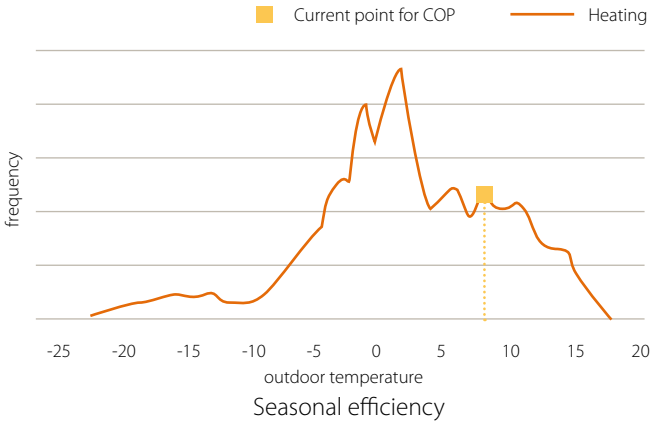
> Consideration of operation at **partial capacity** instead of full capacity.

> Integration of power consumed by devices in **auxiliary modes** (when the unit is not active), which can be substantial over a year.

Adoption of the seasonal efficiency calculation method will result in a better estimation of the real life performance over a year.

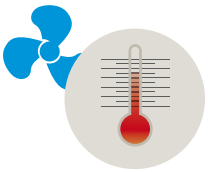


Nominal efficiency



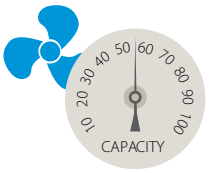
Seasonal efficiency

# Nominal versus Seasonal efficiency



Temperature

| NOMINAL | SEASONAL |
|---|---|
| **1 Temperature condition:** 35°C for cooling 7°C for heating<br>Does not often occur in reality | **Several rating temperatures** for cooling and heating, reflecting actual performance over an entire season |




Capacity

| NOMINAL | SEASONAL |
|---|---|
| Does not reflect partial capacity<br>Benefits of inverter technology not visible | Integrates operation at **partial instead of full capacity**<br>**Benefits of inverter technology** are shown |


Auxiliary modes

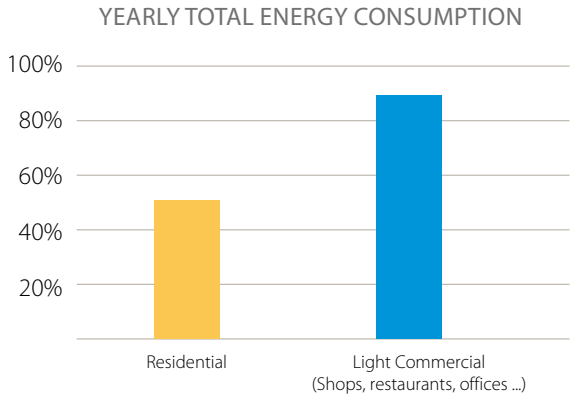
| NOMINAL | SEASONAL |
|---|---|
| Does not take auxiliary power modes into account | Includes consumption auxiliary modes:<br>• Thermostat off<br>• Standby mode<br>• OFF mode<br>• Crankcase heater |

**Nominal efficiency** gives an indication on how efficient an air conditioner operates at a nominal condition.

**Seasonal efficiency** gives an indication on how efficient an air conditioner operates over an entire cooling or heating season.

# Daikin acts first

Although seasonal efficiency will only become the official standard in 2013, Daikin has taken up the challenge and puts in large efforts to meet and even exceed seasonal efficiency criteria. That is why Daikin is the first in the industry to already publish seasonal performance values for residential and light commercial air conditioners. Also **Daikin is the first manufacturer developing products, optimised for seasonal efficiency.** Already in 2010 the Seasonal Inverter range was developed responding to Eco-Design's requirements of 2013.



# Daikin continues to innovate

As the leading air conditioning manufacturer, Daikin already integrates seasonal efficiency in several of its products. Already in April 2010, years before the anticipated 2013 Eco-Design standard, the Daikin Sky Air® Seasonal Inverter line for light commercial applications, was introduced.

Still Daikin continues to innovate and developed in the light commercial range, the new Seasonal Smart and Seasonal Classic ranges. Seasonal Smart products even comply with the EU Eco-Design directives that will only come into force in 2014. These products have improved seasonal efficiency values. This leads to huge energy savings, lowering the energy bill significantly for shops, restaurants, offices, small hotels and other SME's.

Next to its high seasonal performance, the Sky Air® outdoor units, optimised for seasonal efficiency offer an important number of features, such as maximum piping length up to 75m, re-use technology, compatible with D-BACS and a night quiet function.

# The ERP Directive (Eco-Design)

## 2013

ERP Directive (Eco-Design)

- Sets minimum requirements
- Defines a better representation of efficiency:
  **seasonal efficiency**
- Targets lot 10: room air conditioners, local air coolers comfort fans ≤ 12 kW

## Today




- Actively contributes to the development of the Eco-Design methodology for air conditioners by sharing experience and technical knowledge.
- First to publish seasonal performance for both residential and commercial air conditioners.
- First to integrate Eco-Design principle in the light commercial segment by launching Sky Air® ranges optimized for seasonal efficiency.
- Seasonal Smart series already comply with the EU's 2014 Eco-Design requirements
- Daikin offers now a complete light commercial range of products

The full range of Sky Air® indoor units (like round flow cassette, concealed ceiling unit, wall mounted unit…) can be used in combination with the inverter controlled RZQG-L and RZQSG-L series, the capacity ranges from 7kW to 14kW.

For more information on possible combinations, please contact your local dealer or visit www.daikin.eu

In all of us, a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

Daikin Europe N.V. participates in the Eurovent Certification programme for Air conditioners (AC), Liquid Chilling Packages (LCP) and Fan coil units (FCU), Check ongoing validity of certificate online: www.eurovent-certification.com or using: www.certiflash.com



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