

CONNECTING
EXPERTS.

CHILLVENTA eSPECIAL

Refrigeration | AC & Ventilation | Heat Pumps

13.–15.10.2020

NÜRNBERG MESSE



CAREL

Which is the best solution for
commercial and professional
plug-in cabinets?



**BETTER
BETTER**

**CONTROL
ENVIRONMENT**

Knowledge
Center 

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6 October 2020

Summary

- Which are the main objectives when designing a plug-in cabinet?



- Solution for commercial or professional plug-in cabinets



Which are the main objectives
when designing
a plug-in cabinet?

1.Low direct CO₂ emissions

Why?

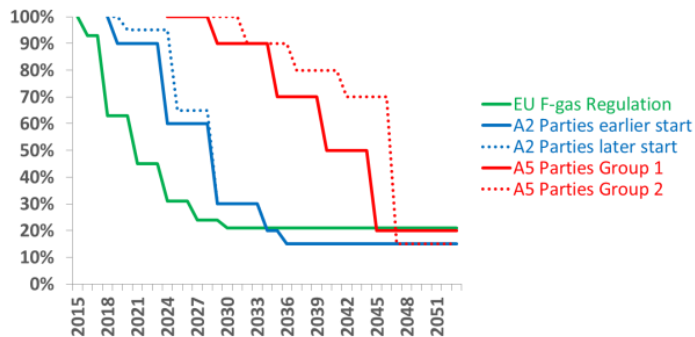


Save the planet

Application	HFC	Banned from
Commercial refrigerators and freezers (Hermetically sealed)	GWP ≥150	1/1/2022

Review of F-gas Proposal by the end of 2021 (ideal timeline)

F-gas regulations



Kigali amendment to Montreal Protocol

No net emissions of greenhouse gases by 2050



European Green Deal

1.Low direct CO₂ emissions

How?

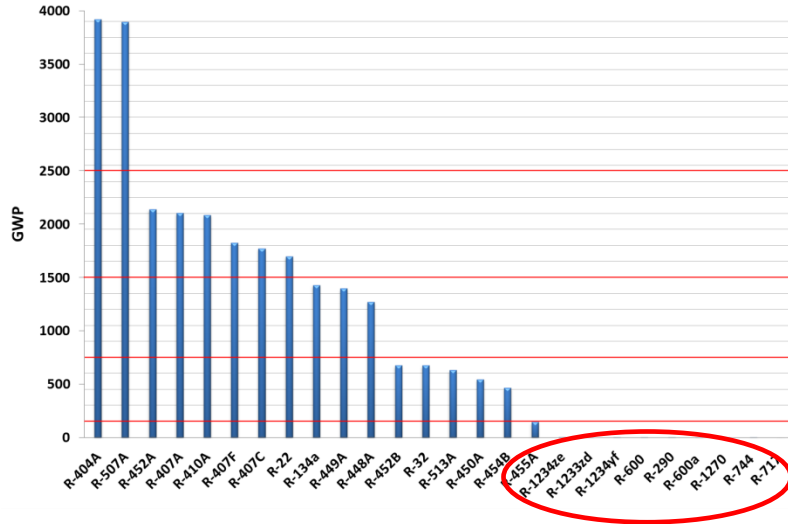
Low GWP refrigerants



Natural refrigerants



R-290 (Propane)



The definitive solution?

GWP ≈ 3

High efficiency

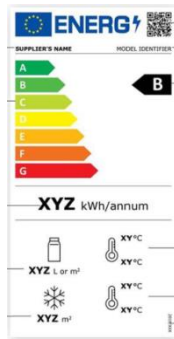
Ideal for plug-in
units (low charge)

2.Low indirect CO₂ emissions

Why?



Save the planet



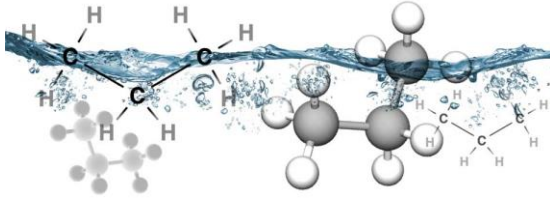
Commercial appliances	Maximum EE	
	March 2021	September 2023
Ice-cream freezers	80	50
Drum vending machines	100	100
All other refrigerating appliances with a direct sales function	100	80

Professional appliances	Maximum EE		
	July 2016	January 2018	July 2019
Professional refrigerated storage cabinets (Except heavy-duty cabinets and refrigerator-freezers)	115	95	85
Heavy duty cabinets	115	-	-

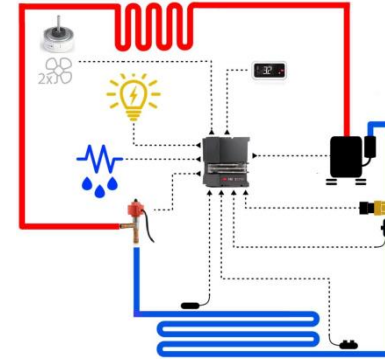
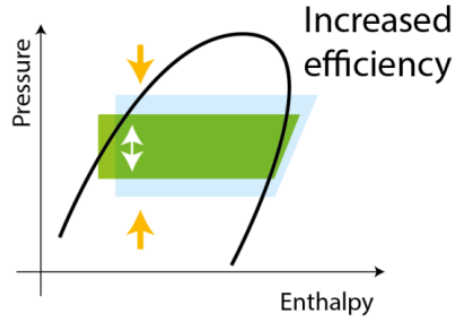
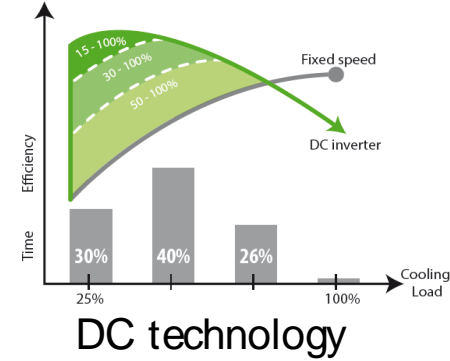
Ecodesign and Energy Labelling

2.Low indirect CO₂ emissions

How?



Propane



Advanced control systems

3.Safe

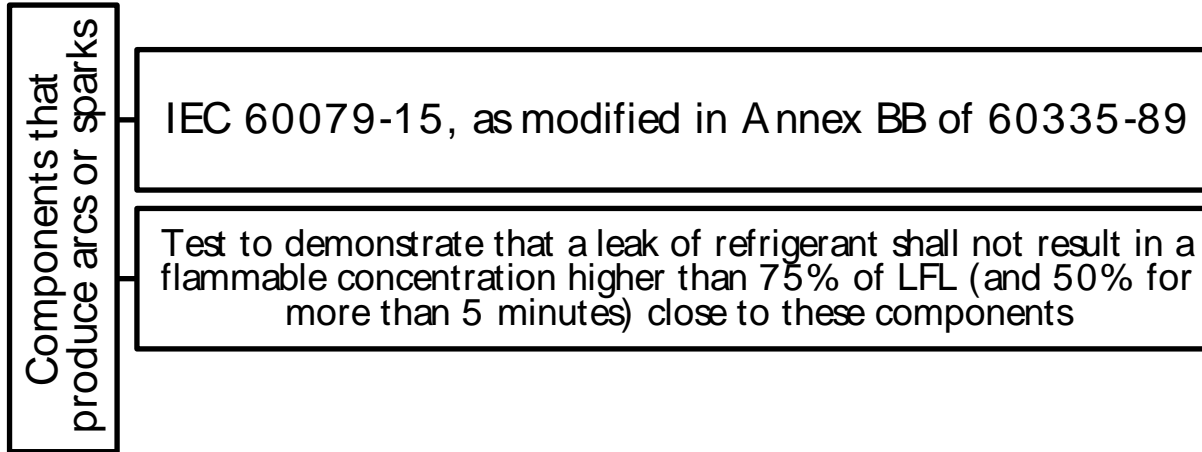
Why?



3.Safe

How?

IEC 60335-2-89: Particular requirements for commercial refrigerating appliances



Version 3.0 of this standard approved in June 2019 (EN 60335-2-89 still to be updated):

- Hermetically sealed systems for units with flammable refrigerants
- Charge limit increased to $13 \times \text{LFL}$ (500 grams for propane): additional test

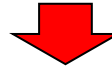
4. Food preservation

Why?



Increasing the store shelf life with just one day results in 43.1% less waste

Reducing food waste



The annual economic impact of food waste is estimated to be \$218 billion in the U.S. and \$143 billion in Europe

Increase earnings



“Zero hunger” is the second of the UN Sustainable Development Goals to be achieved by 2030

End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.



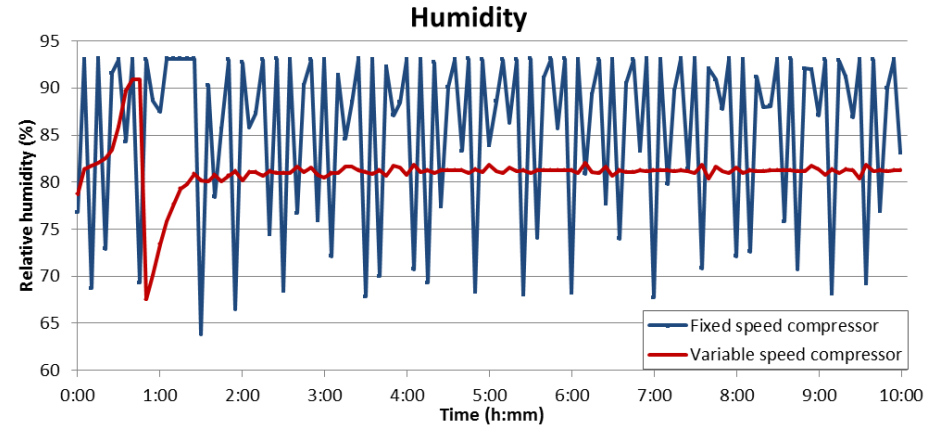
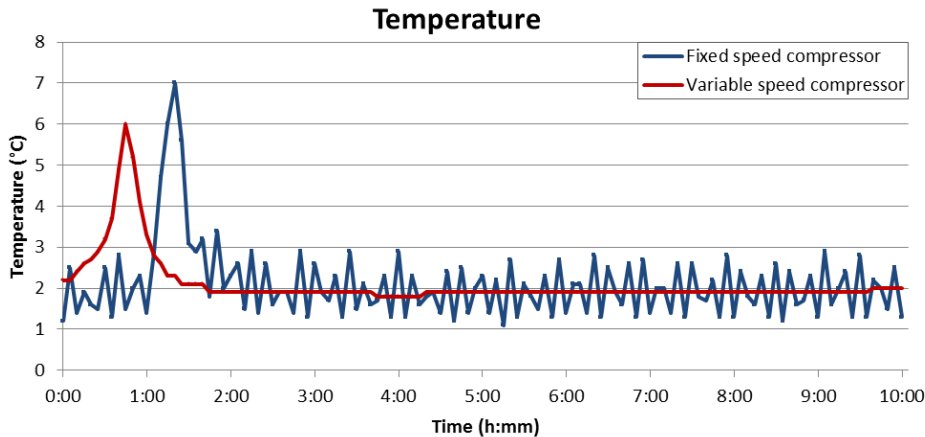
Contribute to achieve SDGs

4. Food preservation

How?

DC compressor: constant temperature and humidity (except during defrost)

ON-OFF compressor: the temperature fluctuates due to the constant on and off of the compressor



Using technologies that ensure a reliable control of parameters, such as DC compressors, means better food preservation

5. Simple commissioning

Why?



Less damage



Ensure food preservation



Avoid direct and indirect CO₂ emissions



Increase safety

5.Simple commissioning

How?



Simple and intuitive user interface

Access of the complete parameters list

List of active alarms

Real time monitoring

Data displayed on graphs and in tables

Solution for
commercial or professional
plug-in cabinets

Heosone

Heosone

efficiency & performance.
naturally connected.



Low direct CO₂
emissions



Specially designed for applications operating
on **propane**

Low indirect CO₂
emissions



DC rotary compressor, **EEV** stepper valve,
variable speed fan, advanced **control** system

Safe



Compliant with requirements of standard
60079-15 as required by the standard **EN**
60335-2-89

Food preservation



Full continuous **modulation**

Simple
commissioning



App APPLICA, **wireless** technology

Typical applications

Heosone

FOOD RETAIL



Supermarket
chest freezer



Supermarket plug-in
showcases (up to 150g limit)

FOOD SERVICE



Catering &
Professional









Laboratory &
Pharmacy

What does CAREL provide?

Heosone

Full package: components

BLDC rotary compressor	Electronic expansion valve	Control unit	DC fan motors	Sensors & probes	User interface
					

What does CAREL provide?

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Full package: connectivity

Solution integration



RS485 to
WIFI
gateway



Built in wireless technology

Boss family of supervisors

Convenience store



Supermarket



Hypermarket



Digital-IOT Services



RED optimise



Work in
progress





**Thank you for your
attention.**

**CONNECTING
EXPERTS.**

