



NEW RANGE

# Breeze

A new wave  
of HVAC

SYSTEMS AVAILABLE  
WITH  
**R134a / R513A**  
SYSTEMS AVAILABLE



DESIGN · POWER · SUSTAINABILITY

# NEW AGE OF HVAC SYSTEMS



**Hispacold is a company with over 40 years of experience leading in the passenger transport HVAC sector.**

- > HVAC SYSTEMS OPERATING IN MORE THAN 100 COUNTRIES ACROSS THE 5 CONTINENTS.
- > OWN TECHNOLOGY DEVELOPED AS RESULT OF ITS R&D POLICY.
- > COLLABORATION WITH TOP UNIVERSITIES AND TECHNOLOGY INSTITUTES.
- > SEVERAL PATENTS REGISTERED.
- > CERTIFIED MANAGEMENT SYSTEMS FOR QUALITY, ENVIRONMENT AND OCCUPATIONAL HEALTH AND SAFETY: EN 15085-2, ISO/TS 22163:2017 (IRIS), ISO 9001:2015 ENAC, ISO 14001:2015 ENAC AND OHSAS 18001:2007 ENAC.

**Design, manufacturing and sales of HVAC systems and components for fuel, hybrid and electric buses and coaches and for rail vehicles, for any type of climate conditions.**



FUEL



ELECTRIC



TROLLEY



HYBRID

# Breeze Range



## A new wave of HVAC

Combining design, power, and sustainability, **Hispacold** has developed a **new range of HVAC systems** that covers **all the needs** of electromobility and fuel buses and coaches **for any climate zones and transport applications (city, intercity and coaches)**.



- > NEW DESIGN
- > INNOVATIVE MATERIALS
- > MINIMUM WEIGHT AND SIZE
- > LOWEST REFRIGERANT CHARGE
- > EASE INSTALLATION
- > AIR EXTRACTION
- > ADAPTABILITY
- > SUITABLE FOR LOW GWP REFRIGERANT
- > ENERGY AND LCC STRATEGY
- > FREE COOLING 0-100%

# MAIN FEATURES



## NEW DESIGN

- > Hispacold has adapted to the new market needs with **lighter, more compact units**. The **modular design** of the new Breeze range favors the adaptation to each customer needs and reducing the lead time.



## INNOVATIVE MATERIALS

- > The combination of technical plastics and aluminum allows to comply with the market toughest technical requirements:
  - 480h NSS according to DIN ISO 9227 – NSS
  - UL94 V0



## MINIMUM WEIGHT AND SIZE

- > The new Breeze range is lighter than the previous range in the market, **achieving a weight reduction of more than 35%** compared to the current ones.



## EASE INSTALLATION

- > The mechanical fixation of the units to the vehicle roof reducer the installation time and allows a cleaner execution.
- > The use of watertight profiles and foam to separate air intake and exhaust guarantees **complete watertightness**.



## LOWEST REFRIGERANT CHARGE

- > The units of the Breeze range **reduce more than 60% the refrigerant charge** compared to previous ones.
- > **Reduction of up to 80% GWP contribution.**



## AIR EXTRACTION

- > The Breeze range incorporate an air extraction system as an option avoiding the installation of an specif one.



## ADAPTABILITY

- > The systems of the Breeze range adapt to **all types of vehicle**: city, intercity, and coach, fuel, hybrid, and 100% electric.
- > The units adapt to **any vehicle roof radius**.



FUEL



ELECTRIC



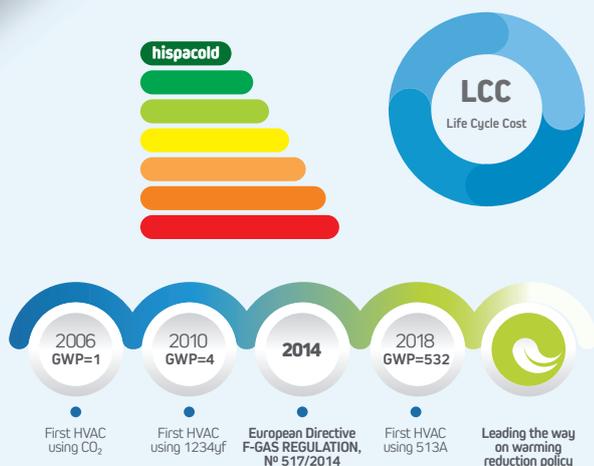
TROLLEY



HYBRID

# Breeze Range

## HISPACOLD WITH ELECTROMOBILITY



### SUITABLE FOR LOW GWP REFRIGERANT

- > Since the beginning, Hispacold has always been concerned about global warming and therefore committed to the environmental sustainability.
- > Since 2006, our R+D+i efforts have been dedicated to two major innovation lines:
  - Development of systems available for a lower GWP refrigerant: (natural refrigerants, HFO and blends) with lower GWP index.
  - Development of systems with reduced refrigerant charge.
- > Breeze range is suitable for work with R134a and R513A, and reduces its refrigerant charge more than 60% this contributes to decrease the environmental impact.

### ENERGY EFFICIENCY

- > Breeze range: committed with energy efficiency:
  - By reducing the weight of the units and lowering the kW/Kg ratio: lower consumption is achieved.
  - By increasing the fresh air-flow, the free cooling option allows to decrease significantly the compressor operation hours without compromising comfort.
  - Installing a CO<sub>2</sub> sensor for controlling the indoor air quality, thus reducing the fresh air flow during unfavorable conditions.
  - Installing Hispacold eco3 air purifier to increase the concentration of oxygen inside the vehicle, additionally cleaning, disinfecting and eliminating odors, thus contributing to improve the indoor air quality.
  - The installation of brushless motors allows lower consumption and optimized regulation.

### LCC

- > Breeze range: committed with low LCC:
  - Components reliability.
  - Reduced quantity of refrigerant connections and refrigerant circuit design in accordance with IMACA regulation for decreasing gas leaks.
  - Optimized operating pressures.
  - Maintenance-friendly: incorporation of brushless motors, ease of dismantling, and fewer connections.
  - Fans with automatic diagnosis for predictive maintenance.
  - Variable frequency drive for regulating compressor speed.
  - BTMS equipped with free cooling to reduce the quantity of compressor operating hours.

# COMPONENTS

## FOR ALL TYPES OF VEHICLE



**BREEZE ROOF  
TOP UNIT**



**EC03  
AIR PURIFIER**



**COMPRESSORS**



**CENTRAL  
HEATING**



**DRIVER  
COMFORT UNIT**



**ECOMASTER  
CONTROL PANEL**



# Breeze Range

EXCLUSIVELY FOR ELECTRIC BUSES

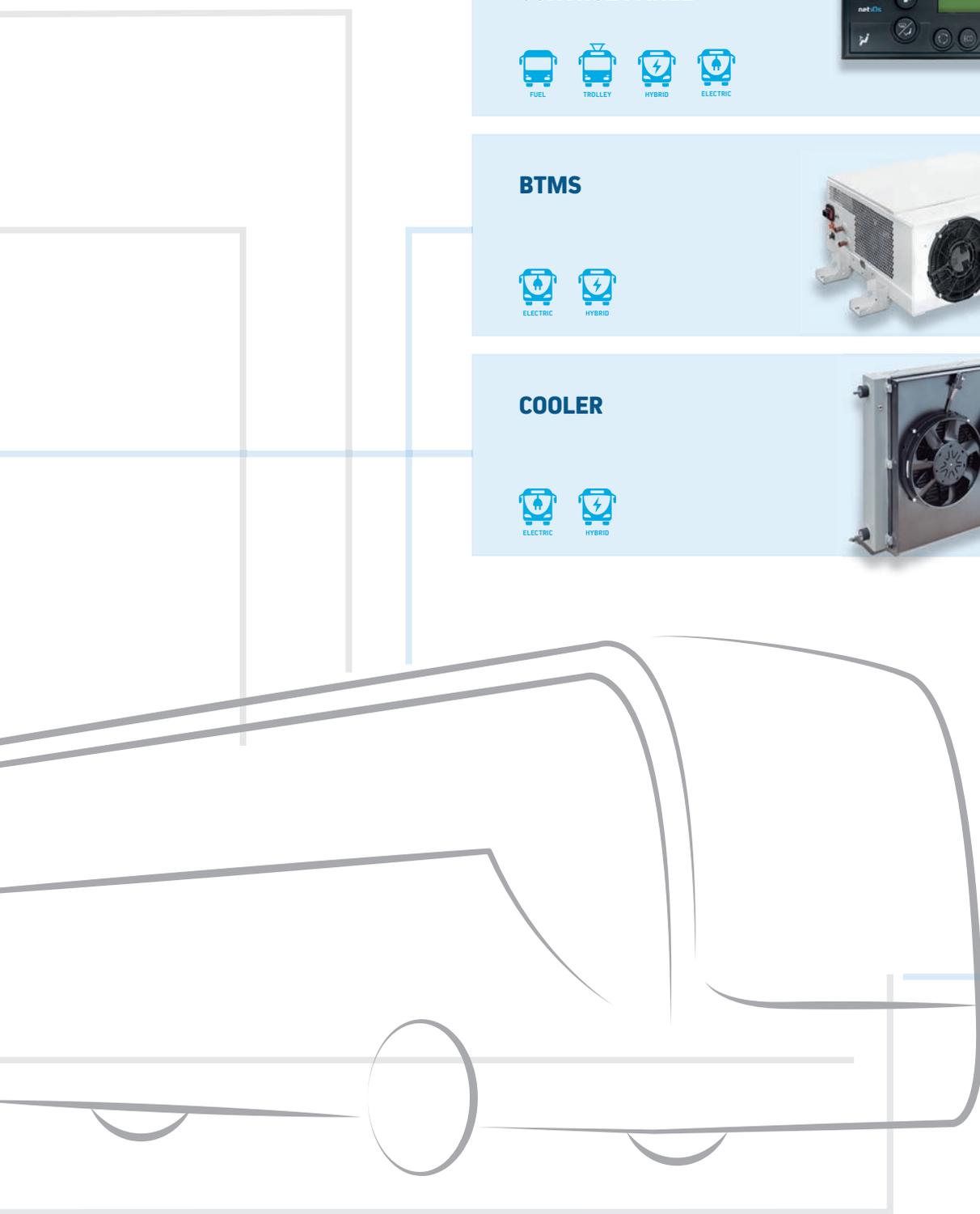
## NETIOS CONTROL PANEL



## BTMS



## COOLER



# SPECIFICATIONS for Fuel and CNG Buses



## BREEZE HVAC RANGE FOR FUEL AND CNG BUSES

Layout unit

Listed cooling capacity (kW) <sup>1</sup>

Rated cooling capacity (kW) <sup>2</sup>

Heating capacity (kW) <sup>3</sup>

Evaporator air capacity (m<sup>3</sup>/h) <sup>4</sup>

Fresh air intake range (%)

Current draw (A) <sup>5</sup>

Dimensions W <sup>6</sup> x L x H (mm)

Average filling volume R134a (kg) <sup>7</sup>

Weight (kg)

Compressors options

Starting Operation limit °C

Performance limit °C



<sup>1</sup> Conditions 40°C/40°C/95%

<sup>2</sup> Conditions 35°C/ 27°C/19°C

<sup>3</sup> Conditions -20°C/ +80°C 16,7 l/min

<sup>4</sup> Free blow with brushless motors

<sup>5</sup> Current consumption for unit only 27 VDC free blow brushless motors

<sup>6</sup> Width varie according to the radii of vehicles roof between 2000-2020

<sup>7</sup> All Systems available with R513A

# Breeze Range



## Breeze 100

## Breeze 200

## Breeze 300

### Narrow (N) Width (W)

28 / 32 / 34

38 / 41 / 44

46

18 / 21 / 24

25 / 27 / 30

34

35

49

36

5160

7740

10320

0-100

0-100

0-100

64

96

128

2000x1950x215

2000x2550x215

2000x2550x215

1,9

2,2

2,4

91-97

128-135

134-142

TM 31 / 470 / HC 550

470 / HC 550 / HC 660

HC 660 / 775

55

55

55

66

66

66

# SPECIFICATIONS for Electric Buses

## BREEZE HVAC RANGE FOR ELECTRICAL BUSES

Layout unit

Compressor operating range (Hz)

Listed cooling capacity (kW) @70Hz <sup>1</sup>

Heating capacity (kW) <sup>2</sup>

Compressor integrated / variable speed

Evaporator air capacity (m<sup>3</sup>/h) <sup>3</sup>

Fresh air intake range (%)

Integrated compressor power

Dimensions W <sup>4</sup> x L x H (mm)

Average filling volume R134a (kg)

Weight (kg)

<sup>1</sup> Conditions 40°C/40°C/95%

<sup>2</sup> Conditions -20°C / +80°C 16,7 l/min

<sup>3</sup> Free blow with brushless motors

<sup>4</sup> Width varie according to the radii of vehicles roof between 2000-2020

## BREEZE HVAC RANGE WITH HEAT PUMP FOR ELECTRICAL BUSES

Layout unit

Compressor operating range (Hz)

Listed cooling capacity (kW) @70Hz <sup>1</sup>

Water coil heating capacity (kW) <sup>2</sup>

Compressor integrated / variable speed

Evaporator air capacity (m<sup>3</sup>/h) <sup>3</sup>

Fresh air intake range (%)

Integrated compressor power

Dimensions W <sup>4</sup> x L x H (mm)

Weight (kg)

<sup>1</sup> Conditions 40°C/40°C/95%

<sup>2</sup> Conditions -20°C / +80°C 16,7 l/min

<sup>3</sup> Free blow with brushless motors

<sup>4</sup> Width varie according to the radii of vehicles roof between 2000-2020

HP systems also available  
with electrical resistance

Estimate system capacity with heat pump. System under development.

# Breeze Range

## Breeze 100e

### Narrow (N)

25-70 / 15-60

22 / 27

35

### Bock 380 4P / Bock 315 2P

5160

0-100

3PH 380V - 420V AC 50Hz

2000x2450x370

1,9

162 / 164

## Breeze 200e

### Narrow (N)

15-60

34

49

### Bock 380 2P

7740

0-100

3PH 380V - 420V AC 50Hz

2000x3000x370

2,2

210

## Breeze 100e HP

### Narrow (N)

25-70 / 15-60

22 / 27

35

### Bock 380 4P / Bock 315 2P

5160

0-100

3PH 380V - 420V AC 50Hz

2000x2450x370

167 / 169

## Breeze 200e HP

### Narrow (N)

15-60

34

49

### Bock 380 2P

7740

0-100

3PH 380V - 420V AC 50Hz

2000x3000x370

215



**NEW AGE** OF HVAC SYSTEMS

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