

E-MOBILITY SOLUTIONS

AS OUR FUTURE ELECTRIFIES

PRECISION DESIGN

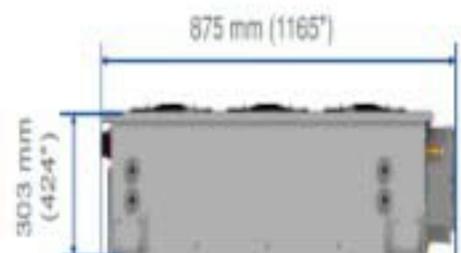
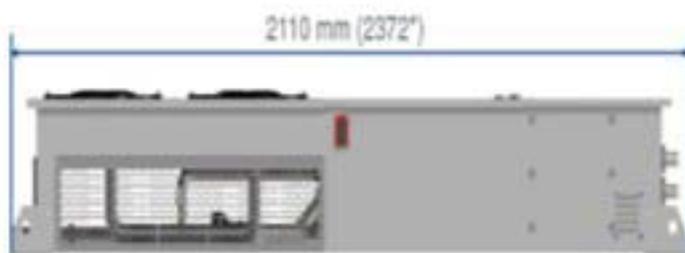
THROUGHOUT EACH & EVERY COMPONENT.



BOREALIS for e-Bus

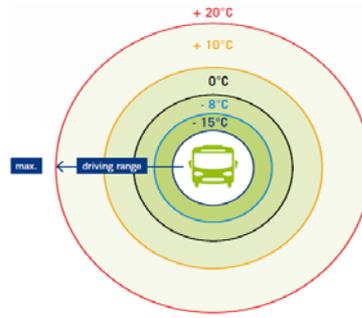
FEATURES

- + Borealis to serve as a heat-pump unlike any other
- + RIGA to compliment the rooftop heat transfer with an aerodynamically formed body and supreme airflow
- + Teddy 2000 provides a strong heat source from both the driver space / anterior as well as posterior of the bus
- + Puma spreads a wide-distribution of convection heat along the sidewall
- + Front Box ensures the front windshield is quickly freed of fog and even ice accumulation.
- + Arenae² features Aurora's specialty Automatic-Temperature Control to serve end-user desires promptly
- + BOREAS - E (see pages 20 - 21) *optional*

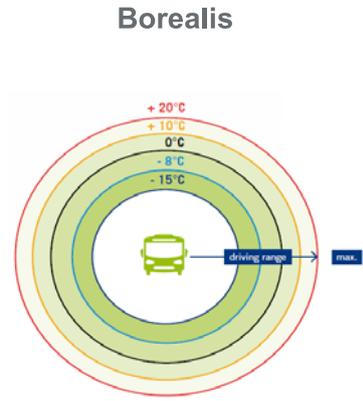


BENEFITS

- + High Energy Efficiency with Fully-Electric Function
- + Flexible, Modular Design to Accommodate Most Any Vehicle
- + Harmonized Performance, Interplay between Components
- + Emissions-Free
- + Blowers Synchronized
- + Two-Step to Stepless Function
- + Filtration Classification Match
- + CFD Simulations Maximize Component Efficiency on the Airflow Side
- + DIN EN45545 certified components
- + Capable of operation in -15°C to $+45^{\circ}\text{C}$ with an additional refrigerant option for 0°C - 55°C



Conventional Heat

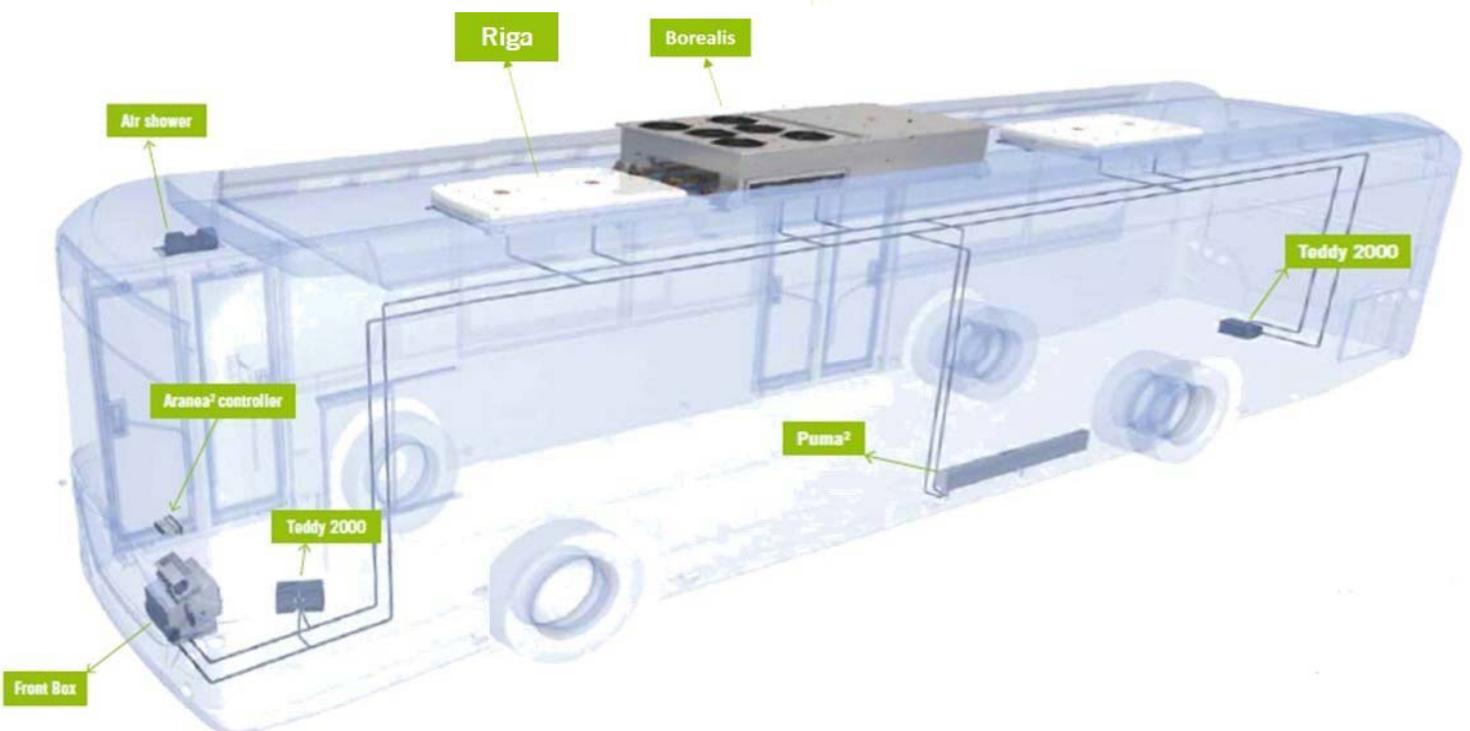


Borealis

AC-MODE	
COP	2,5
Cooling Capacity	22 kW
Cooling fluid interior	4°C
Ambient	35°C / 70% r.h.

HEAT-MODE (ambient air)	
COP	2,6
Heating Capacity	11 kW
Cooling fluid interior	40°C
Ambient	-15°C / 30% r.h.

HEAT-MODE (vehicle waste heat)	
COP	3,5
Cooling Capacity	18 kW
Cooling fluid interior	45°C
Cooling fluid waste	20°C



Electromobility Solutions *Battery Cooler & Heater*

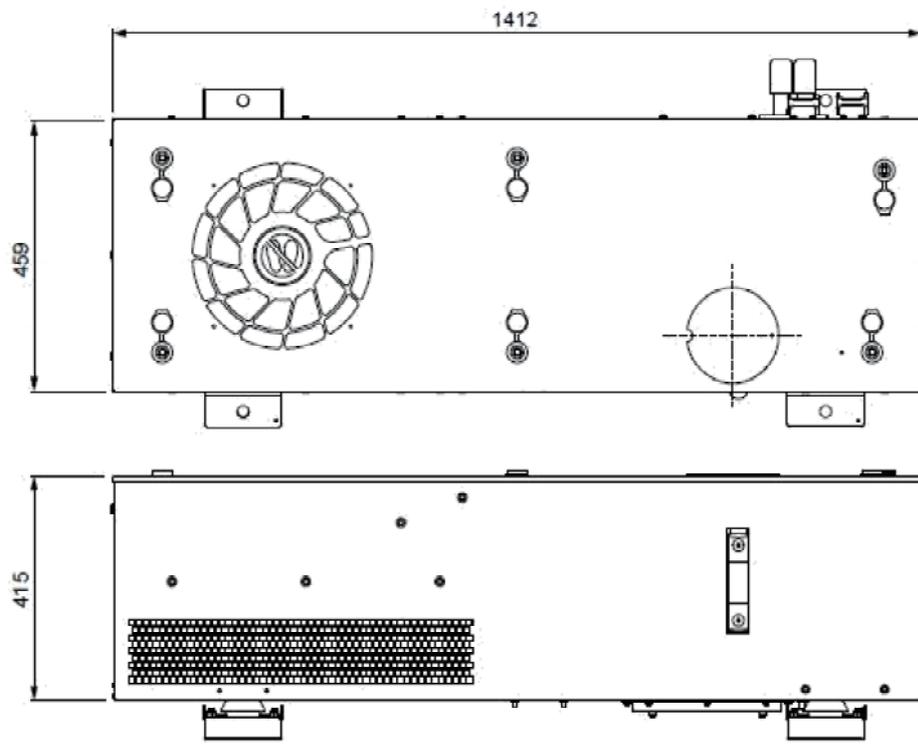
FEATURES & BENEFITS

- + Unison of performance of batteries, this device regulates to maintain the battery’s temperature within an optimal range under most all conditions.
- + Easy-to-Install thanks to modularity of design
- + Long-lasting componentry for minimized aftermarket maintenance and thereby lower cost of ownership
- + Height of only 415mm: the roof-mountable symmetry of this Unit makes for an absolutely ideal application underneath any aerodynamically-curved bus rooftop.
- + Diagnostics available from UDS: enabling monitoring of system performance & variables.
- + Integrated Automatic Coolant De-Airation System designed for smooth, uninterrupted function whenever in use

Performance		
	VS02 - 4kW	VS03 - 7kW
Cooling Capacity ⁽¹⁾	4.2 kW	6.9 kW
Heating Capacity	1.2 kW @ 230 V	1.2 kW @ 230 V
Maximum Current Draw 26 V	17 A	17 A
Dimensions W x L x H	460 x 1412 x 455	804 x 1757 x 377
Weight	84 kg	98 kg.
Refrigerant	R134a	R134a
Volume Flow L/h	Scroll	Scroll
Current Draw water pump 26V	400 V - 3 phase	400 V - 3 phase
Operating Pressure (bar)	5.1 A	9.0 A
Water Pump	Max 6000 L / h at 0.4 bar	Max 6000 L / h at 0.4 bar

1 R134a evaporating 5° C condensing 50 ° C



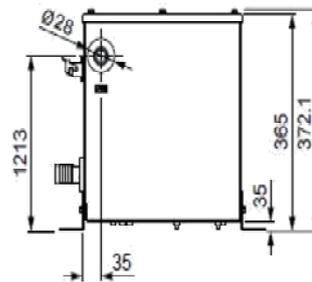
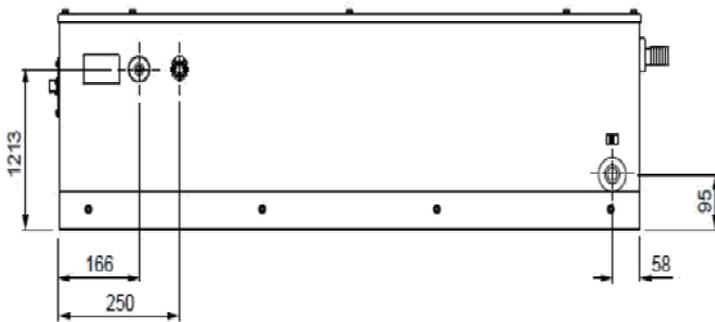
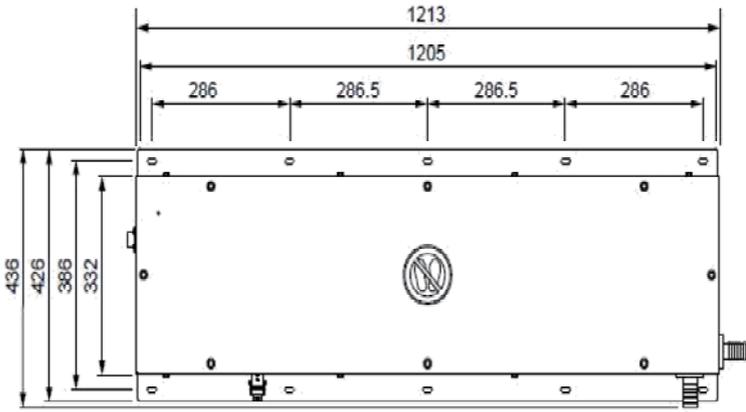


FEATURES & BENEFITS

Powerful similar to its namesake, this **high-voltage heater** is specialized for electric vehicles. By converting electrical energy of the battery with DC voltages, ranging from 300 to 850, into abundant heat, this device provides efficient, zero-emission warming — all throughout the interior of the vehicle.

Performance		
	HV9	HV13
Heating Capacity	8.5 kW	13 kW
Range of supply voltage DC	300 - 850 V DC	300 - 850 V DC
Current Draw	300 V = 4.6 A	300 V = 8 A
	800 V = 12.5 A	800 V = 19 A
Dimensions W x L x H	7 A	436 x 1269 x 372
Weight	8A	42 kg
Volume Flow L/h	> 1500	> 1500
Current Draw water pump 26V	10A	10A
Operating Pressure (bar)	Max. 2.0	Max 2.0





Electromobility Solutions *Bora* HV 20

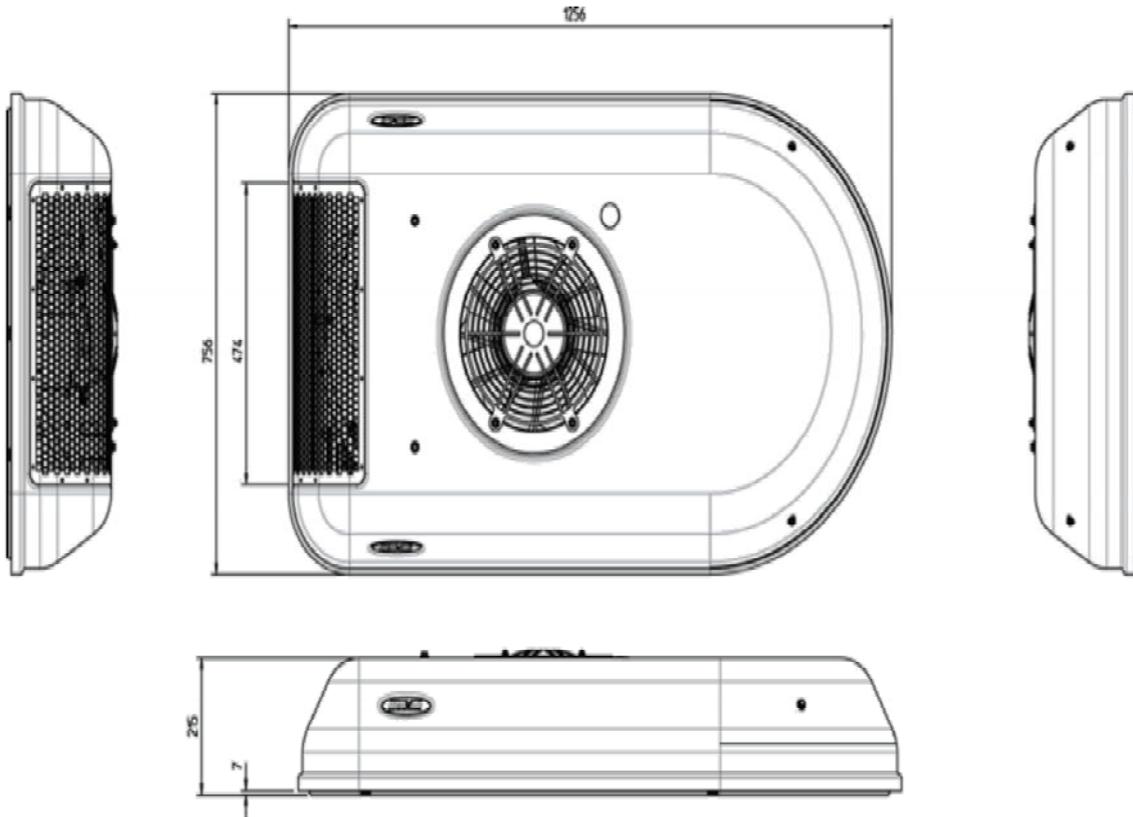
FEATURES & BENEFITS

Electrical rooftop air-conditioner, which is designed specifically to provide constant capacity for both hybrid as well as electric buses.

Performance	
Maximum Cooling Capacity ⁽¹⁾	5.7 kW
Nominal Cooling Capacity ⁽¹⁾	4.6 kW
Heating Capacity ⁽²⁾	-
Airflow ⁽³⁾	800 m ³ / h
Maximum Current Draw 540 DC	7 A
Maximum Current Draw 26 DC	8A
Dimensions L X W X H	2040 x 2585 x 340
Weight	38kg
Refrigerant	R134a
Compressor	Scroll
Range of supply voltage DC	400 - 750V DC

1 AHRI standard: Max: Ti 40°C, Te 35°C, r.h. 46%. Nom: Ti 27°C, Te 35°C, r.h. 46%
2 80°C coolant, 0°C air
3 Free blowing at standard conditions 20°C and 1,01325 Bara





Electromobility Solutions *Boreas - E*

FEATURES & BENEFITS

- + Steady Airflow - Constant Cooling Capacity
- + Fresh Air - 100% Fresh Air Supply
- + Applied Engineering - Roof-Mounted System
- + Quiet Function - Brushless Blowers
- + Modular - Easy-Installation
- + Sustainable - Lightweight & 100 Recyclable
- + No Refrigerant Pipes Installation thanks to an integrated compressor
- + Low Cost of Operation with Durable, Long-Lasting Components

Performance	
Maximum Cooling Capacity ⁽¹⁾	18 / 24 kW; 50 / 75 Hz
Nominal Cooling Capacity ⁽¹⁾	11 / 15 kW; 50 / 75 Hz
Heating Capacity ⁽²⁾	38kW @ Q80
Airflow ⁽³⁾	3800 m ³ / h
Fresh air	0% — 100%
Maximum Current Draw 24 DC	63 A
Dimensions ⁽⁴⁾ L X W X H	2040 x 2585 x 340
Weight	185 kg
Refrigerant	R134a
Compressor	Scroll
Maximum Current Draw 600VC	22 A
Inverter	External
Filter dUdt	optional

1 AHRI standard: Max: Ti 40°C, Te 35°C, r.h. 46%. Nom: Ti 27°C, Te 35°C, r.h. 46%
 2 80°C coolant, 0°C air
 3 Free blowing at standard conditions 20°C and 1,01325 Bara
 4 Custom width on customer demand



