CLIMATE SYSTEMS | BUS HEATING AND AIR CONDITIONING SYSTEMS

THE RIGHT CLIMATE FOR EVERY ENVIRONMENT

BUS & MOTORCOACH

Espar
eco
ANTIHDLING, EMISSION REDUCING EQUIPMENT

A WORLD OF COMFORT

Espar

145 YEARS OF EXPERIENCE ON YOUR SIDE

The integration into an independent, family-run business with more than 145 years of company tradition results in mutual synergies and advantages. The combined expertise in the areas of heating and cooling will make it possible to implement any requirement, constantly following the objective of complete thermal management for buses worldwide from one source.

TOTAL THERMAL MANAGEMENT FOR BUSES

COMFORTABLE TEMPERATURE, WHEREVER YOU ARE

Are you looking for a competent expert who provides the right climate in your buses whatever the challenge? Then Espar is just the partner you need. We design and manufacture innovative heating and air conditioning products with intelligent solutions for total temperature control in buses. As part of the globally active Eberspaecher Group, we are always there when you need us to deliver precisely the range of services you want.

AIR CONDITIONING FOR THE BUSES OF TOMORROW

POWERFUL, MODULAR PRODUCT RANGES:

The modular nature of the components within the product ranges enables us to present a wide range of customer requirements in flexible products suitable for series production.

ENERGY EFFICIENT AND ENVIRONMENTALLY AWARE:

Our air conditioning systems for buses not only ensure maximum temperature comfort, but also make an active contribution to protecting resources and the environment. We achieve this through the use of intelligent, lightweight concepts and compact designs. Heat exchangers designed to automotive standards as well as highly efficient fan technology also increase efficiency while reducing the load on the fuel tank and battery.

TREND-SETTING CLIMATE CONTROL SOLUTIONS:

Our portfolio offers innovative product and system solutions for both present and future generations of buses and motorcoaches. We also have products suitable for buses with hybrid or electric drive concepts.

OEM AND AFTERMARKET APPLICATION EXPERTISE:

Thanks to our decades of experience, we not only supply the air conditioning system as an aftermarket component but we are also able to interpret and analyze the overall system during the concept phase. This makes us a sought-after OEM development partner for many bus manufacturers.

HEATING SYSTEMS — ADDED COMFORT FOR YOUR PASSENGERS

Passengers and drivers board a coach, pre-heated to the ideal temperature. The windows are free of ice and do not fog up. The pre-heated engine saves fuel, starts more easily, and is eco-friendly. In short, you too can benefit from our technology. Here's how:

LOW OPERATING COSTS DUE TO EXCELLENT EFFICIENCY:

Product efficiency minimizes operating costs by using less power and fuel while reducing wear and tear on the engine.

COMPACT DIMENSIONS MAKE THE SYSTEMS EASY TO INSTALL:

Small, light, compact, and interface compatible for quick and easy installations at the manufacturing and aftermarket levels.

SAFE AND EASY TO SERVICE:

Diagnostic options for easier service with modular design and fewer components. The intelligent electric control and safety concept operates with two sensor elements: no mechanical overheat, no safety fuse.

RELIABLE STARTING:

Even at extreme temperatures due to nozzle holder pre-heating

NOISE OPTIMIZATION:

Noise optimization ensures quiet operation.

LARGE ROOFTOP AIR CONDITIONERS
PRODUCT RANGE

Espar's product family offers extremely adaptable heating, ventilation, and air conditioning solutions for city buses, intercity buses, motorcoaches, and school buses. These products are the result of continuous refinement and provide comfort, even in the most extreme climates. Thanks to its compact dimensions and lightweight construction, Espar's air conditioning solutions can fit on any bus roof, regardless of model configuration. Even under pressure, they have proven their ability to provide the most advanced solutions worldwide.

ADDITIONAL BENEFITS:

- Extremely compact modular design due to advanced MCHX (Micro Channel Heat Exchanger) technology
- One standard footprint for all units and reduced refrigerant charge for a greener environment
- Faster installation reduces time in bus production
- Reduction in leakage potential, thanks to semi-hermetic refrigerant circuit
- Reduced life cycle cost and excellent serviceability
- Brushless blower technology and a variety of other options available upon customer request

AC 136 G3

TECHNICAL DATA	AC 136 G3 I	AC 136 G3 II	AC 136 G3 III	AC 136 G3 IV
Cooling Capacity (kW/BTU)	24 / 82000	32 / 110000	38 / 120000	44 / 155000
Heating Capacity (kW/BTU)	37 / 130000	42 / 143000	46 / 157000	49 / 167000
Length (cm/in)	243 / 95.7	243 / 95.7	295 / 116.1	295 / 116.1
Width (cm/in)	(201/218) / (79.1/85.8)	(201-218) / (79.1/85.8)	(201-218) / (79.1/85.8)	201-218) / (79.1/85.8)
Height (cm/in)	20 / 7.9	20 / 7.9	20 / 7.9	20 / 7.9
Weight (kg/lb)	155 / 341.7	160 / 352.7	207 / 456.4	214 / 471.8
Evaporator Air Capacity (m^3/h/cfm)	4400 / 2590	6600 / 3885	6600 / 3885	8800 / 5180
Total Power Input at 12/24 VDC	-/58 A	-/73 A	-/82 A	-/105 A
Refrigerant	R 134a	R 134a	R 134a	R 134a

AC 353 G4

TECHNICAL DATA	AC 353 G4 I	AC 353 G4 II	AC 353 G4 III	AC 353 G4 IV
Cooling Capacity (kW/BTU)	27 / 92000	32 / 110000	38 / 120000	45 / 154000
Heating Capacity (kW/BTU)	38 / 120000	38 / 120000	38 / 120000	24 / 82000
Length (cm/in)	301.5 / 118.7	384 / 151.2	384 / 151.2	384 / 151.2
Width (cm/in)	185 / 72.8	185 / 72.8	185 / 72.8	185 / 72.8
Height (cm/in)	21.5 / 8.5	21.5 / 8.5	21.5 / 8.5	21.5 / 8.5
Weight (kg/lb)	155 / 341.7	175 / 385.8	180 / 396.8	195 / 429.9
Evaporator Air Capacity (m³/h/cfm)	4400 / 2590	6600 / 3885	6600 / 3885	8800 / 5180
Total Power Input at 12/24 VDC	-/72 A	-/94 A	-/94 A	-/128 A
Refrigerant	R 134a	R 134a	R 134a	R 134a

AC 353 G4 NARROW

TECHNICAL DATA	AC 353 I	AC 353 II	AC 353 III
Cooling Capacity (kW/BTU)	25 - 27 / 85400 - 92000	34 / 116100	37 / 126400
Heating Capacity (kW/BTU)	38 / 120000	38 / 120000	38 / 120000
Length (cm/in)	304.8 / 120	391.2 / 154	391.2 / 154
Width (cm/in)	149.9 / 59	149.9 / 59	149.9 / 59
Height (cm/in)	20.3 / 8	21.6 / 8.5	21.6 / 8.5
Weight (kg/lb)	155 / 342	175 / 386	180 / 397
Evaporator Air Capacity (m³/h/cfm)	4400 / 2590	6600 / 3885	6600 / 3885
Total Power Input at 24 VDC	-/72 A	-/94 A	-/94 A
Total Power Input at 12 VDC	-/144 A	-/188 A	-/188 A
Refrigerant	R 134a	R 134a	R 134a
Compressor Capacity (cm³/in³) *2 circuit	2 x 210 / 2 x 12.8	2 x 310 / 2 x 18.9	N/A
Compressor Capacity (cm³/in³)	470 / 28.7	560 / 34.2	560 / 34.2

COOLANT HEATER
PRODUCT RANGE

This series of heaters is compact and lightweight while still being powerful and rugged in design. This makes it ideal for providing engine, fuel, and hydraulic pre-heat for buses. They can be incorporated into a coach's heating system to provide supplemental heat and are the first choice for those who require rapid heating when operating in "Arctic-like" climates. Espar heaters come in a variety of sizes and power levels, depending on a customer's needs. They also have several customizable options so you can be assured of equipment reliability and maximum productivity in any climate while ensuring low operating costs.

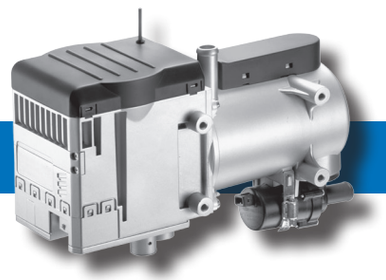
ADDITIONAL BENEFITS:

- Instant heat and defrost so no more cold starts
- Heater can be mounted in different positions and angles for installation flexibility
- Low fuel and power consumption and eliminates electrical plug-ins
- Self-Diagnostics improve ease of operation and maintenance

HYDRONIC D5

TECHNICAL DATA	SETTING	HYDRONIC D5 SC	HYDRONIC D5 S	HYDRONIC D5 E
Heat Output (kW/BTU)	Boost High Low	— 5 / 17100 2.4 / 8200	— 5 / 17100 2.4 / 8200	5.2 / 17800 5 / 17100 2.1 / 7200
Fuel Consumption (l/hr / gal/hr)	Diesel 1/2 Boost High Low	— 0.62 / 0.16 0.27 / 0.07	— 0.62 / 0.16 0.27 / 0.07	0.64 / 0.17 0.61 / 0.16 0.26 / 0.07
Fuel Metering Pump		Internal or External	External	External
Electrical Consumption (amps) *12 V model shown 12 or 24 V available	Boost High Low	— 4.2 1.9	— 4.2 1.9	3.3 3.1 1.0
Coolant Pump		Internal	External	External
Weight (kg/lb)		2.9 / 6.4	2.3 / 5.07	2.4 / 5.3

HYDRONIC M-II



TECHNICAL DATA	HYDRONIC M8 (Bio-Diesel)	HYDRONIC M10	HYDRONIC M12
Heat Output (kW/BTU)	1.5 / 5120 8.0 / 27300	1.5 / 5120 9.5 / 32400	1.2 / 4100 12 / 42000
Fuel Consumption (l/hr / gal/hr)	0.9 / 0.24 0.18 / 0.05	1.2 / 0.32 0.18 / 0.05	1.5 / 0.4 0.15 / 0.04
Electrical Consumption (amps) *12 V model shown 12 or 24 V available	2.9 - 4.6	2.9 - 7.2	2.8 - 11
Weight (kg/lb)	6.2 / 13.7	6.2 / 13.7	6.2 / 13.7

HYDRONIC L-II

TECHNICAL DATA	HYDRONIC 16	HYDRONIC 24	HYDRONIC 30	HYDRONIC 35
Heat Output (kW/BTU)	16 / 54600	24 / 88000	30 / 102400	35 / 120000
Fuel Consumption (l/hr / gal/hr)	2.0 / 0.53	2.9 / 0.77	3.7 / 0.98	4.2 / 1.11
Electrical Consumption (amps) *24V heater only (without coolant pump) 12V converter available	2.5	3.33	4.38	5
Weight (kg/lb)	18.1 / 40	18.1 / 40	18.1 / 40	18.1 / 40
Coolant Throughput	5200 l/hr against 0.2 bar 1374 gal/hr against 3 psi			

Espar Products, Inc.
(800) 387-4800
(905) 670-0960
www.espar.com

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