



Roof Mount HVAC **Eco 136**

Parallel roof mount HVAC system

The Eco 136 product line offers very adaptable and flexible HVAC solutions for ideal passenger comfort in city buses, intercity buses and coaches. Within this powerful model range, cooling capacities from 24 to 44 kW (81900 to 150000 Btu/hr) are available. The Eco 136 has very compact

dimension and is lightweight allowing it to fit on an any large bus roof regardless of the model configuration. Outstanding energy conservation performance is another key benefit of this product line, delivering needed air conditioning capacity while consuming less energy and reducing bus operating cost.

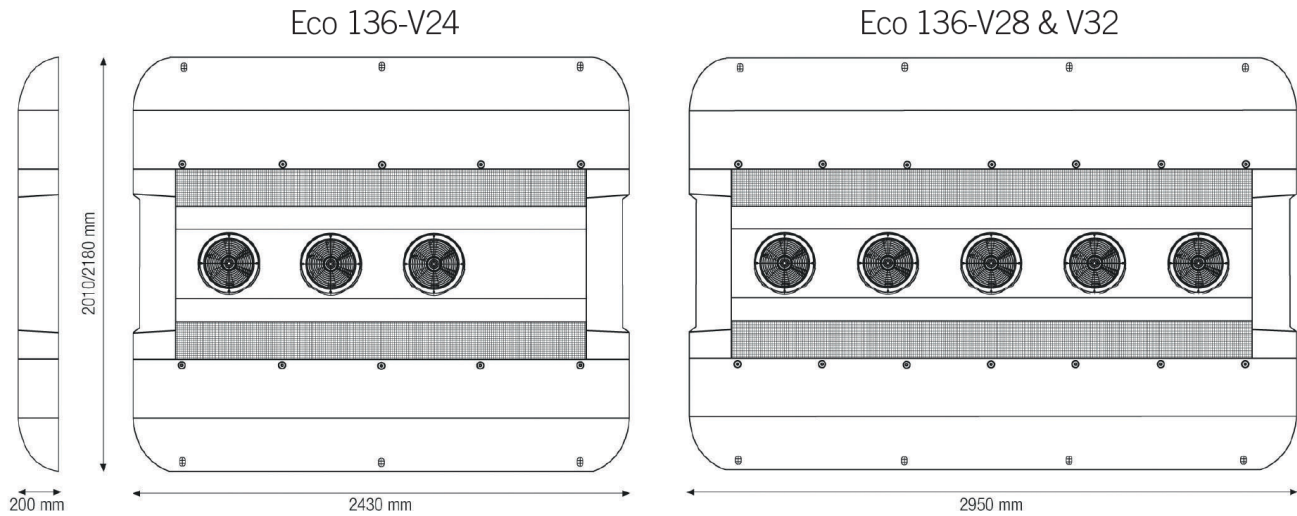


Features

- Long life brushless fan motors
- Reliable CAN enabled microprocessor-based controls
- Heavy duty heat exchanger coils
- Easy access to internal parts and components
- Zero ozone depleting, high efficiency HFC R134a
- Advanced coil and airflow technology
- Increased heating and cooling capacity
- Compact design minimizing installation area
- EcoTemp MAX Controller

Benefits

- Provides up 40,000 hours life cycle along with high efficiency to minimize electrical power
- Communicates with vehicle electronics for optimized control and operation
- Long life durable to meet environmental conditions
- Saves time for seasonal maintenance or other service
- Friendly to the environment
- Provides 15% efficiency benefit versus competitors saving energy and operating cost
- Provides better comfort for all weather conditions
- Space saved can allow installation on hybrid and CNG buses
- Latest electronic design for optimized control
- OLED display provides outstanding display no matter from what angle or lighting conditions



Technical Data

	ECO 136 - V24	ECO 136 - V28	ECO 136 - V32
Cooling capacity @ max ^[1]	109000 Btu/hr (32 kW)	133000 Btu/hr (39 kW)	150000 Btu/hr (44 kW)
Cooling capacity @ ARI ^[2]	82000 Btu/hr (24 kW)	96000 Btu/hr (28 kW)	109000 Btu/hr (32 kW)
Heating @ 7 gpm (100F Δ T)	130000 Btu/hr (38 kW)	130000 Btu/hr (38 kW)	130000 Btu/hr (38 kW)
Length	96" (2430 mm)	116" (2950 mm)	116" (2950 mm)
Width	79-86" (2010-2180 mm)	79-86" (2010-2180 mm)	79-86" (2010-2180 mm)
Height	8" (200 mm)	8" (200 mm)	8" (200 mm)
Weight	352 lbs (160 kg)	455 lbs (207 kg)	470 lbs (214 kg)
Evaporator air capacity	3900 CFM (6600 m ³ /hr)	3900 CFM (6600 m ³ /hr)	5200 CFM (8800 m ³ /hr)
Total power input	73 A	97 A	114 A
Refrigerant	R134a	R134a	R134a

[1] Max conditions 95°F (35°C)/104°F (40°C)/50% RH

[2] ARI conditions: 95°F (35°C) / 80°F (27°C) / 50% RH





Electric Roof Mount HVAC **Eco 136e**

Electric parallel roof mount HVAC system

MCC's newest line member Eco 136e completes the portfolio of compact and super efficient roof mount HVAC systems designed to meet all OEM bus requirements. These HVAC systems offer very adaptable and flexible heating, ventilation and air conditioning solutions for best in class passenger comfort in transit, intercity buses, and coaches. The aluminum electric piston compressor integrated into the unit offers reduced weight, variable speed control, and cylinder unloading. The wide modulation range allows efficient power management

without having to cycle the compressor, providing optimal operation minimizing energy consumption. Noise, vibration, and harshness (NVH) reduction are achieved by using a quiet compressor, with special mount design and minimized compressor cycling. A higher capacity scroll compressor also available. A robust inverter, very efficient and reliable, drives the compressor. Air cooling of the inverter improves the overall reliability by reducing complexity. This unique advanced designed air-cooled inverter drives the compressor with fewer components resulting in greater reliability.

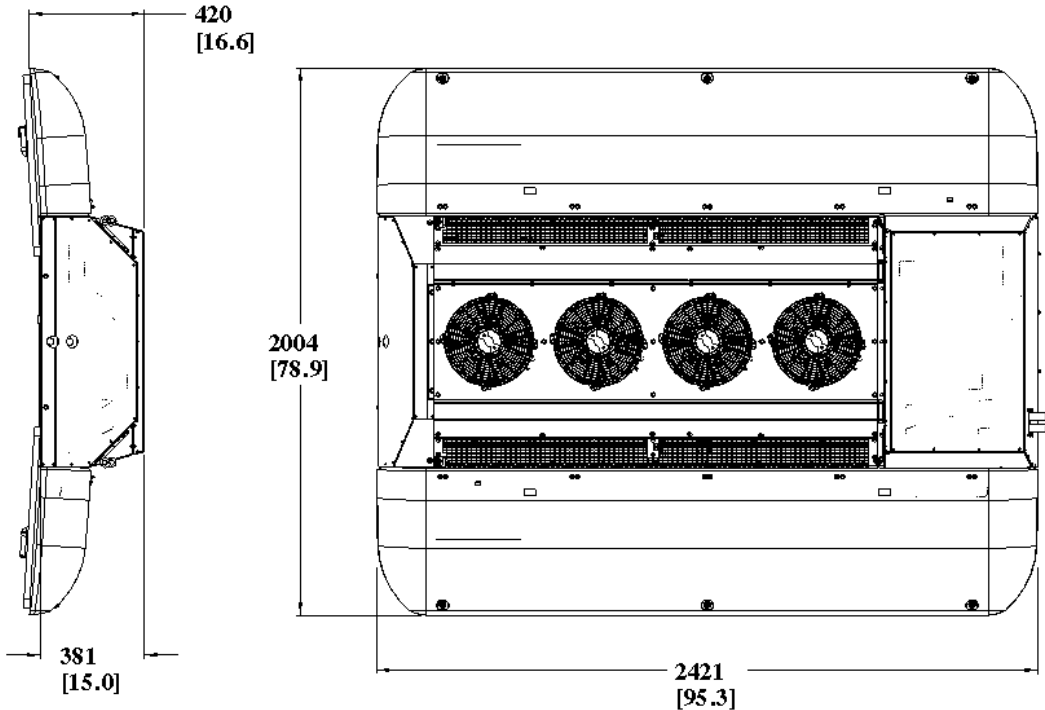


Features

Benefits

- Variable speed electric powered compressor
- Self contained, fully sealed, factory charged and tested
- Long life brushless fan motors
- Reliable CAN enabled microprocessor-based controls
- Heavy duty heat exchanger coils
- Easy access to internal parts and components
- Zero ozone depleting, high efficiency HFC R134a
- Advanced coil and airflow technology
- Compact design minimizing installation area
- EcoTemp MAX Controller

- Maximizes efficiency for providing output capacity to need
- Long life compressor
- No customer cost for equipment and time to connect and charge refrigerant
- Provides up to 40,000 hours life cycle along with high efficiency to minimize electrical power
- Communicates with vehicle electronics for optimized control and operation
- Long life durable to meet environmental conditions
- Saves time for seasonal maintenance or other service
- Friendly to the environment
- Provides 15% efficiency benefit versus competitors saving energy and operating cost
- Space saved can allow installation on hybrid and CNG buses
- Latest electronic design for optimized control
- OLED display provides outstanding display no matter from what angle or lighting conditions



Technical Data

Refrigerant	R134a	
Cooling capacity @ max ^[1]	109000 Btu/hr (32kW)	
Cooling capacity @ ARI ^[2]	82000 Btu/hr (24 kW)	
Glycol Heating @ 7 gpm (100F Δ T)	130000 Btu/hr (38 kW)	
Electric Heating	54500 Btu/hr (16 kW)	
Evaporator air capacity	3900 CFM (6600 m ³ /hr)	
Length	96" (2430 mm)	
Width	79-86" (2010 - 2180 mm)	
Height	15" (380 mm) max (at the compressor enclosure)	
Weight	660 lbs (300 kg)	
Low voltage power consumption	100 A @ 26 VDC	
High voltage power consumption ^[3]	20 A @ 650 VDC or 480 VAC 3-PH	40 A @ 330 VDC or 240 VAC 3-PH
OPTION: Refrigerant to glycol chiller	12000 Btu/hr (3.5 kW)	

[1] Max conditions 95°F (35°C)/104°F (40°C)/50% RH
 [2] ARI conditions: 95°F (35°C) / 80°F (27°C) / 50% RH
 [3] Nominal w/o electric heat





Roof Mount HVAC **Eco Xcel**

Inline roof mount HVAC system

The Eco Xcel is another industry leading design from of MCC's performance engineered HVAC products. Our innovative roof mount HVAC system delivers the ultimate in passenger comfort in the most energy efficient way with best in industry fuel

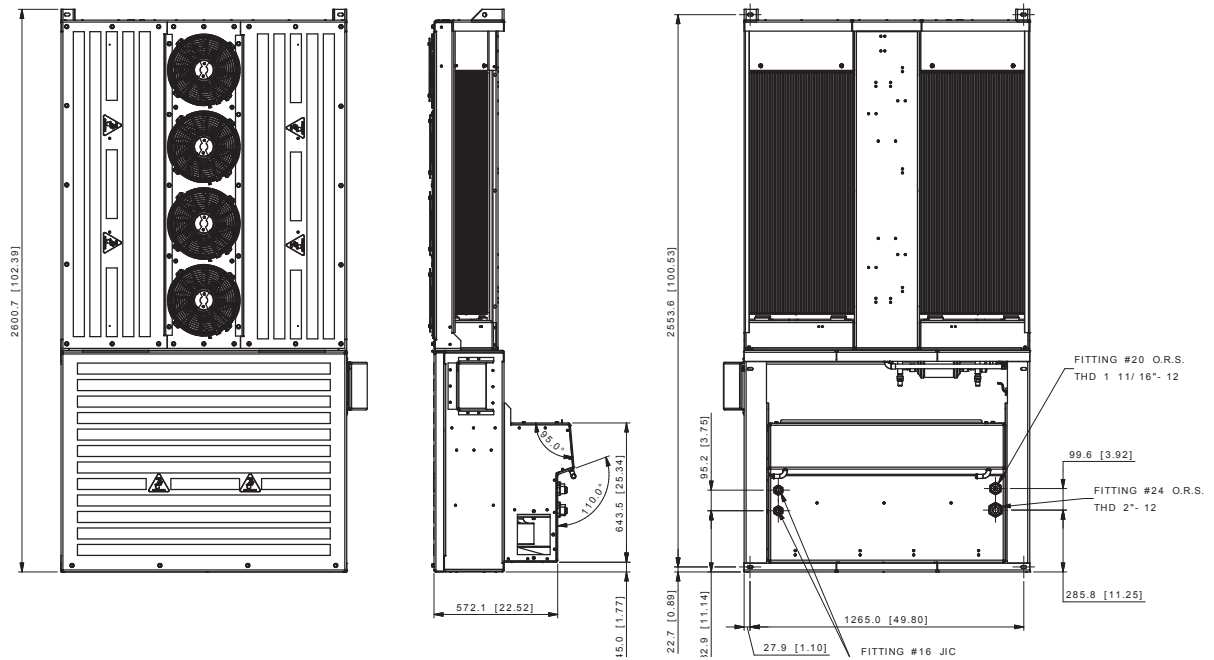
economy. The results are staggering with 18% reduction in weight, 24% reduction in electrical power consumption and up to 36% increase in cooling capacity compared to market published data.



Features

Benefits

- | | |
|---|--|
| <ul style="list-style-type: none"> • Long life brushless fan motors • Reliable CAN enabled microprocessor-based controls • Heavy duty heat exchanger coils • Easy access to internal parts and components • Zero ozone depleting, high efficiency HFC R134a • Advanced coil and airflow technology • Increased heating and cooling capacity • Compact design minimizing installation area • EcoTemp MAX Controller | <ul style="list-style-type: none"> • Provides up to 40,000 hours life cycle along with high efficiency to minimize electrical power • Communicates with vehicle electronics for optimized control and operation • Long life durable to meet environmental condition • Saves time for seasonal maintenance or other service • Friendly to the environment • Provides 15% efficiency benefit versus competitors saving energy and operating cost • Provides better comfort for all weather conditions • Space saved can allow installation on hybrid and CNG buses • Latest electronic design for optimized control • OLED display provides outstanding display no matter from what angle or lighting conditions |
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Technical Data

Cooling capacity (ARI) ^[1]	120000 Btu/hr (35kW)
Heating capacity ^[2]	126000 Btu/hr (37 kW)
Air flow	2400 CFM (4100 m ³ /h)
Refrigerant	R134a
Current	71.5 A at 28 V
Weight	410 lbs (186 kg)
Dimensions (LWH)	102.4" (2600.7 mm) x 52" (1320.8 mm) x 25.5" (647.5 mm)

[1] ARI conditions: 95°F (35°C) / 80°F (27°C) / 50% RH

[2] Heating Rating Conditions: 8 GPM (30 l/min) coolant flow rate (50% glycol) and 100°F (55°C) Δ T between fluids at inlet.





Electric Roof Mount HVAC **Eco Xcel e**

Inline roof mount HVAC system

MCC Eco Xcel electric roof mount HVAC system delivers significantly higher operating capacity, efficiency, considerably less maintenance, longer system life with reduced engine loads resulting in lower fuel consumption. MCC's roof mount electric series HVAC system meets or

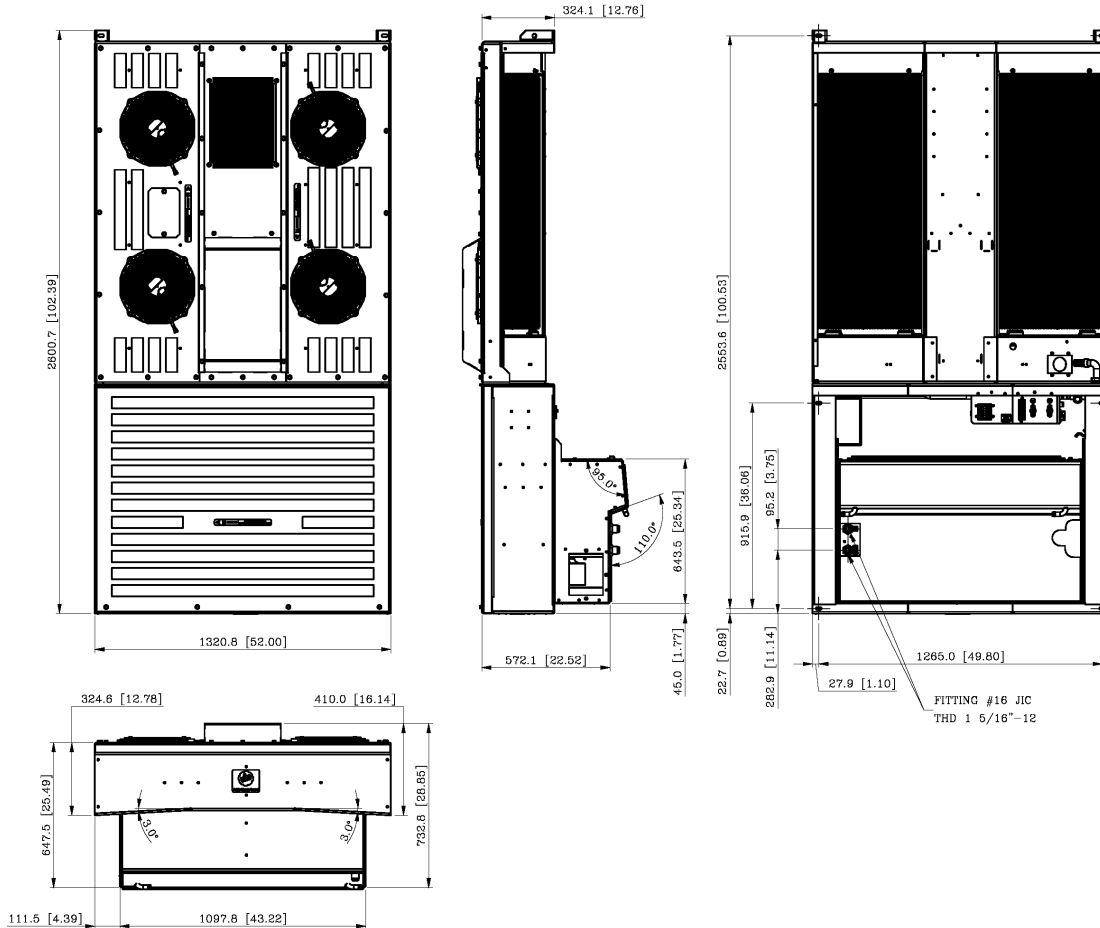
exceeds industry recognized specifications in both the cooling and heating modes. All this superior performance is provided using standard HFC R134a non-Ozone depleting refrigerant. The MCC Eco Xcel electric HVAC system provides the lowest life cycle cost in the industry.



Features

Benefits

<ul style="list-style-type: none"> • Variable speed electric powered scroll compressor 	<ul style="list-style-type: none"> • Maximizes efficiency for providing output capacity to need • Long life compressor
<ul style="list-style-type: none"> • Self contained, fully sealed, factory charged and tested 	<ul style="list-style-type: none"> • No customer cost for equipment and time to connect and charge refrigerant
<ul style="list-style-type: none"> • Long life brushless fan motors 	<ul style="list-style-type: none"> • Provides up to 40,000 hours life cycle along with high efficiency to minimize electrical power
<ul style="list-style-type: none"> • Reliable CAN enabled microprocessor-based controls 	<ul style="list-style-type: none"> • Communicates with vehicle electronics for optimized control and operation
<ul style="list-style-type: none"> • Heavy duty heat exchanger coils 	<ul style="list-style-type: none"> • Long life durable to meet environmental conditions
<ul style="list-style-type: none"> • Easy access to internal parts and components 	<ul style="list-style-type: none"> • Saves time for seasonal maintenance or other service
<ul style="list-style-type: none"> • Zero ozone depleting, high efficiency HFC R134a 	<ul style="list-style-type: none"> • Friendly to the environment
<ul style="list-style-type: none"> • Advanced coil and airflow technology 	<ul style="list-style-type: none"> • Provides 15% efficiency benefit versus competitors saving energy and operating cost
<ul style="list-style-type: none"> • Compact design minimizing installation area 	<ul style="list-style-type: none"> • Space saved can allow installation on hybrid and CNG buses
<ul style="list-style-type: none"> • EcoTemp MAX Controller 	<ul style="list-style-type: none"> • Latest electronic design for optimized control • OLED display provides outstanding display no matter from what angle or lighting conditions



Technical Data

Cooling capacity (ARI) ^[1]	85000 Btu/hr (25 kW)
Heating capacity ^[2]	126000 Btu/hr (37 kW)
Air flow	2400 CFM (4100 m ³ /h)
Refrigerant	R134a
Voltage	400 V / 3-ph / 50 Hz (480 V / 3-ph / 60 Hz) – nominal – other voltages are available
Weight	625 lbs (283 kg)
Dimensions (LWH)	102.4"(2600.7 mm) x 52"(1320.8 mm) x 28.8"(732.8 mm)

[1] ARI conditions: 95°F (35°C) / 80°F (27°C) / 50% RH

[2] Heating Rating Conditions: 8 GPM (30 l/min) coolant flow rate (50% glycol) and 100°F (55°C) Δ T between fluids at inlet.





Eco 353 - 24 / 28 / 32

Inline roof mount HVAC unit

The Eco 353 inline roof mount bus unit has been enhanced to meet the demanding and varied needs of the Global market. The lightweight, high capacity heavy duty transit bus roof mount unit provides improved overall fuel consumption, enhanced reliability, reduced life cycle, service costs compared to its predecessors. When combined with MCC's industry leading 05G compressor, the Eco 353 also offers optimum

cooling capacity. There are four versions with capacities covering all climate zones and a wide variety of options to meet customer requirements and expectations. The system uses MCC's micro channel heat exchanger (MCHX) coil technology, which reduces weight while also delivering significant performance improvements through better heat transfer and thermal performance. Extended motor life is available through the use of brushless motors.

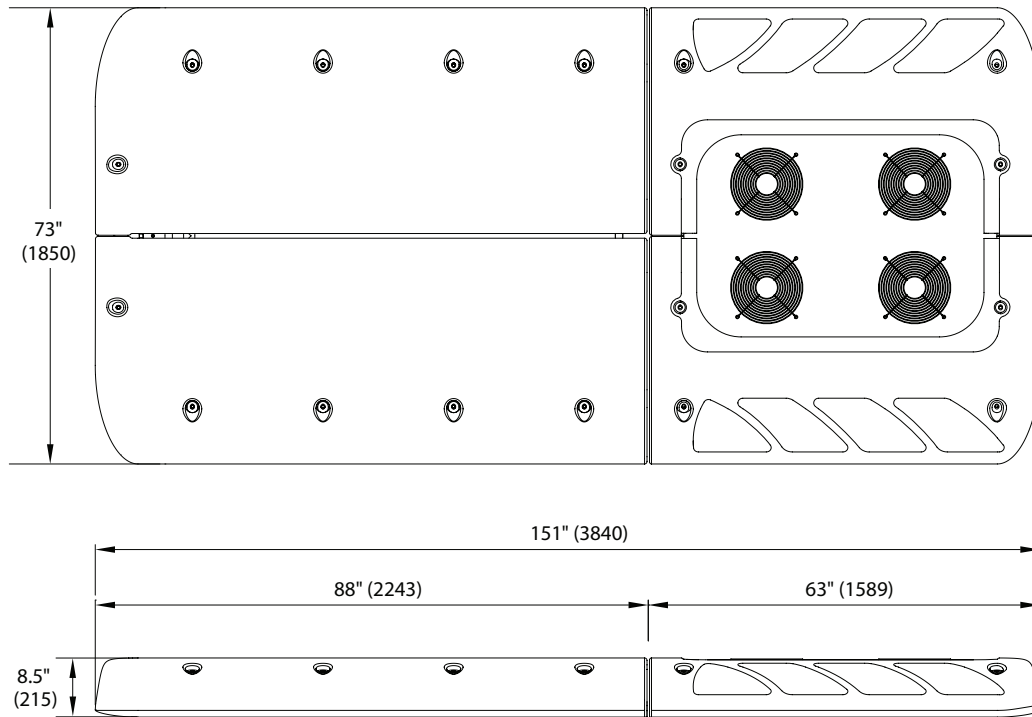


Features

- Long life brushless fan motors
- Reliable CAN enabled microprocessor-based controls
- Heavy duty heat exchanger coils
- Easy access to internal parts and components
- Zero ozone depleting, high efficiency HFC R134a
- Advanced coil and airflow technology
- Compact design minimizing installation area

Benefits

- Provides up 40,000 hours life cycle along with high efficiency to minimize electrical power
- Communicates with vehicle electronics for optimized control and operation
- Long life durable to meet environmental conditions
- Saves time for seasonal maintenance or other service
- Friendly to the environment
- Provides 15% efficiency benefit versus competitors saving energy and operating cost
- Space saved can allow installation on hybrid and CNG buses



Technical Data

	Eco 353 - 24	Eco 353 - 28	Eco 353 - 32
Cooling capacity @ max ^[1]	109000 Btu/hr (32 kW)	130000 Btu/hr (38 kW)	143000 Btu/hr (42 kW)
Cooling capacity @ ARI ^[2]	82000 Btu/hr (24 kW)	96000 Btu/hr (28 kW)	109000 Btu/hr (32 kW)
Heating @ 7 gpm (100F Δ T)	130000 Btu/hr (38 kW)	130000 Btu/hr (38 kW)	82000 Btu/hr (24 kW)
Length	151" (3840 mm)	151" (3840 mm)	151" (3840 mm)
Width Standard	73" (1850 mm)	73" (1850 mm)	73" (1850 mm)
Width Narrow	58" (1490 mm)	58" (1490 mm)	58" (1490 mm)
Height	8.5" (215 mm)	8.5" (215 mm)	8.5" (215 mm)
Weight	385 lbs (175 kg)	420 lbs (190 kg)	450 lbs (204 kg)
Refrigerant	R134a	R134a	R134a
Airflow (Max)	3900 CFM (6600 m ³ /hr)	3900 CFM (6600 m ³ /hr)	5200 CFM (8800 m ³ /hr)
Current Draw (Max)	95 A	95 A	128 A

[1] 35°C/40°C/50% RH Max conditions

[2] 35°C/27°C/46% RH ARI conditions





Husky 35 / 40 / 45

High capacity economical roof mount HVAC unit

The Husky product family of inline roof mount air-conditioning unit has been enhanced to meet the demanding and varied demands of the global bus market. The lightweight, high capacity heavy duty transit bus roof mount unit provides improved overall fuel consumption, enhanced reliability, reduced life cycle, service costs compared to its predecessors. Three capacity versions will suit perfectly the demanding heavy duty large bus roof mount applications.

Microchannel Heat Exchangers (MCHX) and light weight design allows lowest possible weight. High part similarity with all members of the product family, very flexible interface to the bus roof and optimal accessibility to service parts perfectly meets bus producer and bus operator expectations. For the maximum passenger and driver comfort, the Siberian product family systems are coupled with MCC's advanced control system.

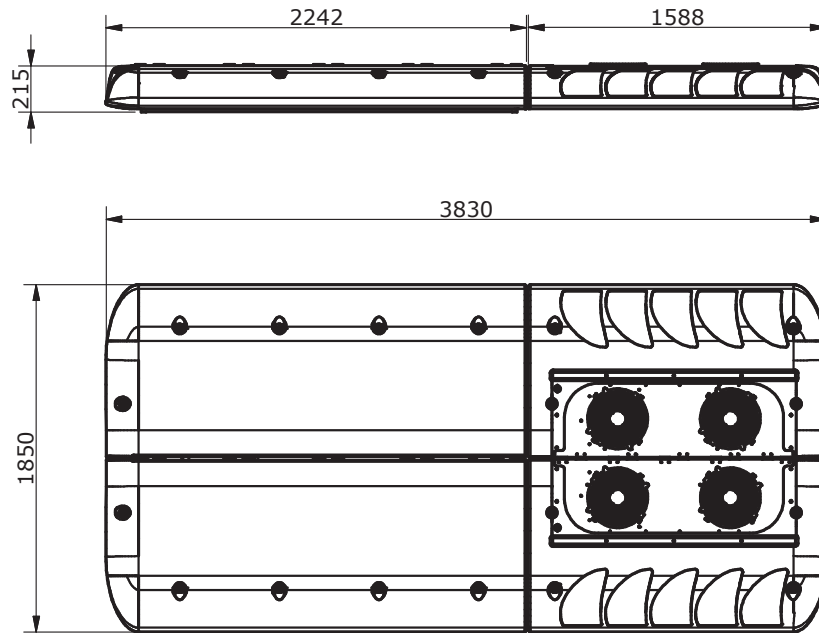


Features

Benefits

- Slim design
- Condensing section designed for optimal airflow allows use in high ambient condition
- Air filter, filter dryer, TXV accessible from return air opening/blowers, coils from with hinged two-piece cover
- Long-life brushless evaporator blowers & fans
- Compact design, MCHX condenser
- 3 cooling capacity variants
- One roof interface for all variants, different roof adaptors
- Options: 20 or 40% Fresh air, articulated version, different MCC controllers from basic to high end
- Refrigeration (suction, discharge), heating (glycol), front box connection flexible left or right

- Modern appearance, good aerodynamics
- High efficiency. Allows the best performance in high ambient condition
- Saves time for seasonal maintenance or other service
- High reliability and efficiency, up to 40.000 hours life cycle
- Low weight, environmentally friendly
- Can be used for different climate zones
- Same fixation points in the roof structure, fits for roof curvatures from flat to 6m
- High flexibility
- Easy to apply to any bus model, variant



Technical Data

	Husky 35	Husky 40	Husky 45
Cooling capacity @ MAX ^[1]	34 kW	38 kW	45 kW
Cooling capacity ARI ^[2]	26 kW	29 kW	34 kW
Heating capacity (Q80)	38 kW	38 kW	24 kW
Length x Width x Height	3830 mm x 1850 mm x 215 mm	3830 mm x 1850 mm x 215 mm	3830 mm x 1850 mm x 215 mm
Weight	175 kg	180 kg	195 kg
Refrigerant	R134a	R134a	R134a
Airflow (Max)	6600 m ³ /h	6600 m ³ /h	8800 m ³ /h
Current Draw (Max)	94 A	94 A	128 A
Current Draw (Nom)	61 A	61 A	83 A

[1] Maximum cooling condition (MAX) ti 40 °C/ ta 35 °C/ 50%

[2] Nominal cooling condition (ARI) ti 27 °C/ ta 35°C/ 50%





SIBERIAN 20 / 25 / 30

Roof top HVAC unit for diesel buses

The Siberian family of compact roof mount air-conditioning unit has been developed and enhanced to meet the varied demands best suited to the global bus and coach market. Three capacity versions will suit most medium and large bus roof mount applications. Microchannel Heat Exchangers (MCHX), aluminum evaporator coil and piping allows lowest possible weight.

High part similarity with all members of the product family, very flexible interface to the bus roof and optimal accessibility to service parts perfectly meets bus producer and bus operator expectations. For the maximum passenger and driver comfort, the Siberian product family systems are coupled with MCC's advanced control system.

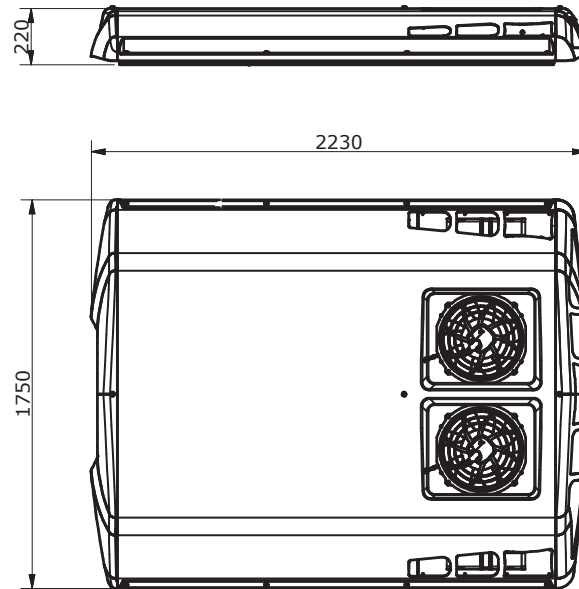


Features

- Many common parts with the AE unit and heat pump
- Slim design
- Condensing section designed for optimal airflow
- Access to the air filter, filter dryer, TXV from return air opening. Access of other internal parts through the hinged one-piece cover
- Long-life brushless blowers, 380mm fans
- Full aluminum refrigerant circuit, MCHX condenser
- 3 cooling capacity variants
- One roof interface for all variants, different roof adaptors
- Options: 20 or 40% FA, central air variant, different MCC controllers from basic to high end
- Refrigeration (suction, discharge), heating (glycol), front box connection flexible left or right

Benefits

- Fewer part numbers reduced the spare part variety
- Modern appearance, good aerodynamics
- Allows high-efficiency operations and best performance in high ambient condition
- Best serviceability. Saves time for seasonal maintenance or other service
- High reliability and efficiency, up to 40.000 hours life cycle
- Low weight, environmentally friendly
- Can be used for different climate zones
- Same fixation points in the roof structure, fits for roof curvatures from flat to 6m
- Multiple options, high flexibility
- Easy to apply to any bus model, variant



Technical Data

	Siberian 20	Siberian 25	Siberian 30
Cooling capacity MAX ⁽¹⁾	16 kW	24 kW	30 kW
Cooling capacity ARI ⁽²⁾	11 kW	17 kW	21 kW
Heating capacity (Q80)	18 kW	38 kW	18 kW
Length x Width x Height	2230 mm x 1750 mm x 220 mm	2230 mm x 1750 mm x 220 mm	2230 mm x 1750 mm x 220 mm
Weight	85 kg	90 kg	95 kg
Air flow (Max)	4400 m ³ /h	4400 m ³ /h	4400 m ³ /h
Current draw Max (24VDC)	50 A	64 A	64 A
Current draw Nom (24VDC)	33 A	42 A	42 A
Refrigerant	R134a	R134a	R134a

[1] Maximum cooling condition (MAX) ti 40 °C/ ta 35 °C/ 50%

[2] Nominal cooling condition (ARI) ti 27 °C/ ta 35°C/ 50%



Mobile Climate Control



Siberian AE

Roof top AC unit for electrical buses

As a consistent further development of the Siberian product platform, MCC developed a highly efficient and reliable electrical AC variant to specifically meet the varied demands in the future global bus and coach market. The Siberian AE as a self-contained AC unit with scroll compressor technology including glycol battery cooling and PTC heating option will suit all

typical medium and large bus roof mount applications. Microchannel Heat Exchangers (MCHX), aluminum evaporator coil and piping allows lowest possible weight. High part similarity with all members of the product family, the same interface to the bus roof and optimal accessibility to service parts perfectly meet bus producer and bus operator expectations.

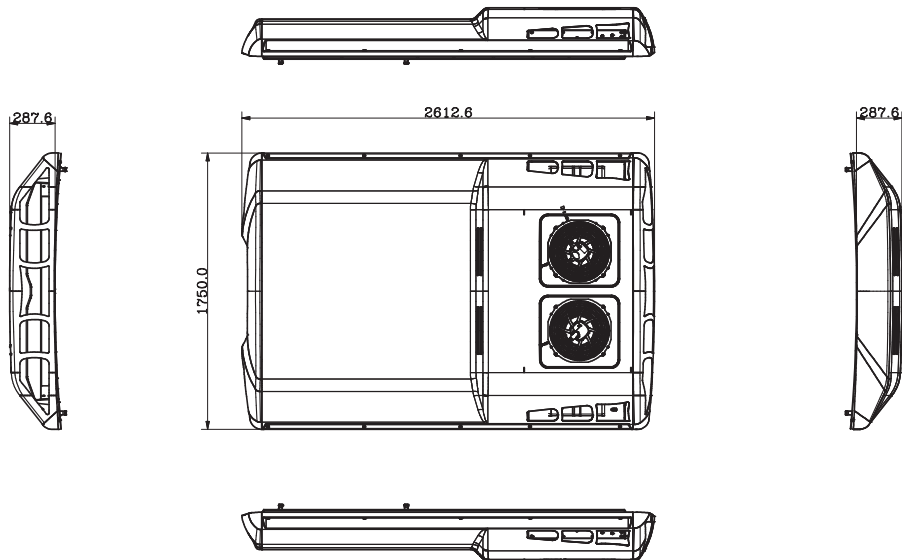


Features

- Many common parts with the conventional unit and heat pump
- Slim design (max height 290mm)
- Integrated scroll compressors 750VDC / condensing section designed for optimal airflow / high flexible control logic
- Access to the air filter, filter dryer, TXV from return air opening. Access of other internal parts through the hinged one-piece cover
- Brushless evaporator blowers, 380mm fans
- Full aluminum refrigerant circuit, MCHX condenser
- One roof interface for all-electric and heat pump variant
- Options: PTC heater (10/15kW), integrated battery cooler, 20 or 40% FA, central air variant, different MCC controllers from basic to high end
- Heating (glycol), battery cooler (glycol), front box connection flexible left or right

Benefits

- Fewer part numbers reduced the spare part variety
- Modern appearance reduced total bus height
- Allows high efficient, silent operation and best performance in high ambient conditions. No additional inverter needed.
- Best serviceability. Saves time for seasonal maintenance or other service
- High reliability and efficiency, up to 40.000 hours life cycle
- Low weight, environmentally friendly
- No change of fixation points or roof structure needed
- Multiple options, high flexibility
- Easy to apply to any bus model, variant



Technical Data

Siberian AE	
Cooling capacity MAX ^[1]	22 kW
Cooling capacity ARI ^[2]	16 kW
Heating capacity coolant (Q80)	18 kW
Heating capacity electrical* (750VDC)	10 / 15 kW
Length x Width x Height	2610 mm x 1750 mm x 220/290 mm
Weight	160 kg
Air flow (Max)	4400 m ³ /h
Current draw Max (24VDC)	64 A
Current draw Nom (24VDC)	42 A
Current draw compressor (750VDC)	16 A
Current draw heating (750VDC)	13 / 20 A
Refrigerant	R134a

* Optional

[1] Maximum cooling condition (MAX) ti 40 °C/ ta 35 °C/ 50%

[2] Nominal cooling condition (ARI) ti 27 °C/ ta 35°C/ 50%



Mobile Climate Control



Siberian HP

Roof top Heat Pump unit for electrical buses

As completion of the Siberian product platform, MCC developed a highly efficient and reliable electrical Heatpump variant. The Siberian HP as self-contained HVAC unit with scroll compressor technology including glycol battery cooling and PTC heating option will suit

best to moderate and cold climate conditions. High part similarity with conventional and heat pump variant, same interface to the bus roof and optimal accessibility to service parts perfectly meet bus producer and bus operator expectations.

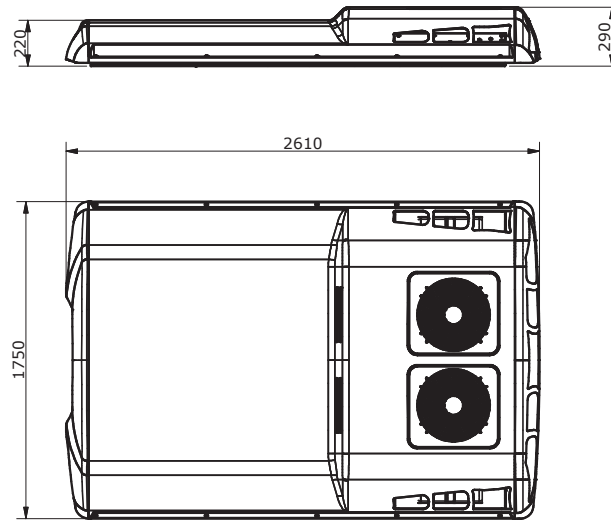


Features

- Many common parts with a conventional and electrical unit
- Slim design (max height 290mm)
- Integrated scroll compressors 750VDC / condensing section designed for optimal airflow / high flexible control logic
- Access to the air filter, filter dryer, TXV from return air opening. Access of other internal parts through the hinged one-piece cover
- Brushless evaporator blowers, 380mm fans
- Compact design, aluminum heat exchangers
- One roof interface for all-electric and heat pump variant, different roof adaptors
- Options: PTC heater (10/15kW), integrated battery cooler, 20 or 40% FA, central air variant, different MCC controllers from basic to high end
- Heating (glycol), battery cooler (glycol), front box connection flexible left or right

Benefits

- Fewer part numbers reduced the spare part variety
- Modern appearance reduced total bus height
- Allows high efficient, silent operation and best performance in high ambient conditions. No additional inverter needed.
- Best serviceability. Saves time for seasonal maintenance or another service
- High reliability and efficiency, up to 40.000 hours life cycle
- Low weight, environmentally friendly
- No change of fixation points or roof structure needed, fits for roof curvatures from flat to 6m
- Multiple options, high flexibility
- Easy to apply to any bus model & variant



Technical Data

Cooling capacity MAX ^[1]	22 kW
Cooling capacity ARI ^[2]	16 kW
Heating capacity ^[3]	15 kW
Heating capacity electric* (750VDC)	10 / 15 kW
Length x Width x Height	2610 mm x 1750 mm x 220/290 mm
Weight	180 kg
Air flow (Max)	4400 m ³ /h
Current draw Max (24VDC)	64 A
Current draw Nom (24VDC)	42 A
Current draw compressor Max (750VDC)	18 A
Current draw heating (750VDC)	13 / 20 A
Refrigerant	R134a

* Optional

[1] Maximum cooling condition (MAX) ti 40 °C/ ta 35 °C/ 50%

[2] Nominal cooling condition (ARI) ti 27 °C/ ta 35°C/ 50%

[3] Heating condition ti 20 °C/ ta 10°C



Mobile Climate Control



EcoFlex 4

Fully flexible modular climate control system with a full range of options

EcoFlex AC product family has been enhanced to meet new demands in the global bus market. The self-contained unit (EcoFlex4E) consists of all components including variable speed scroll compressor and brushless blower and fan. Optional available are fresh air system, coolant or electrical PTC heater. You can also choose a model with just a condenser and compressor for a split system (EcoFlex 4ES) A third

model (EcoFlex 6) is available which includes all components except the compressor. This model can be used as a passenger A/C for minibuses. All models are manufactured with extensive use of aluminum Components, Microchannel Heat Exchangers (MCHX) and attractive GFK covers to allow lowest possible weight. The cooling systems have been optimized to provide the maximum cooling performance with a minimal R134a refrigerant charge.



EcoFlex 4E



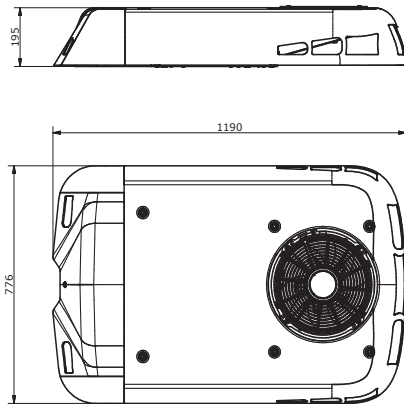
EcoFlex 4ES

Features

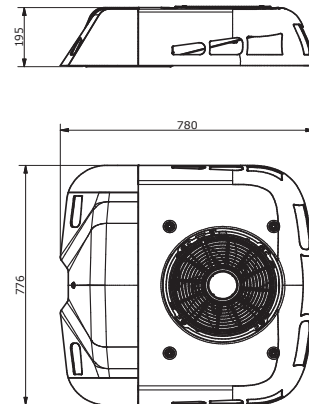
- Modular system with several options (Fresh air 20%, coolant heater, PTC Heater)
- Compact slim design, full aluminum refrigerant circuit, MCHX condenser
- Integrated variable scroll compressor 24VDC, condenser section designed for optimal airflow, high flexible control logic, low refrigerant charge
- Easy access to internal parts and components
- Installation “plug and play”, drain water outlet to the roof
- Long-life brushless blower & fan
- MVC controller with CAN interface

Benefits

- High flexibility for different applications. Can be used for moderate cooling of the passenger compartment (Complies with VDV standard 236/1)
- Low weight, environmentally friendly, modern appearance
- Better passenger comfort, high efficiency, silent operation. Allows the best performance in high ambient condition
- Best serviceability. Saves time for seasonal maintenance or another service
- Short installation time. No drain water hose routing needed in the bus
- High reliability and efficiency, up to 40.000 hours life cycle
- Customized controls according to customer specifications



EcoFlex 4E



EcoFlex 4ES

Technical Data

	EcoFlex 4E	EcoFlex 4ES	EcoFlex 6
Application	DC Powered AC	DC Powered AC	Conventional AC
Type	Complete AC System	Complete AC System	Condenser / Evaporator
Compressor type	Semi hermetic scroll variable speed	Semi hermetic scroll variable speed	Depends on application
Cooling capacity MAX ⁽¹⁾	4,0 kW	4,0 kW	6,0 kW
Cooling capacity ARI ⁽²⁾	3,0 kW	3,0 kW	4,5 kW
Voltage	28 VDC	28 VDC	28 VDC
Heating capacity (Q80)*	6,0 kW	Depends on defroster	6,0 kW
Heating capacity electric*	max. 1,5 kW (28VDC)	Depends on defroster	N/A
Fresh air (Yes/No)*	Yes (with flap)	Depends on defroster	Yes (with flap)
Width x Length x Height	776 mm x 1190 mm x 195 mm	776 mm x 780 mm x 195 mm	776 mm x 780 mm x 195 mm
Air flow (free blowing)	800 m ³ /h	Depends on application	800 m ³ /h
Current draw (Max)	65 A	55 A	22 A
Current draw (Nom)	45 A	39 A	14 A
Refrigerant charge	750 g (R134a)	Depends on application (R134a)	Depends on application (R134a)
Weight	37 kg	27 kg	19 kg

*Optional

(1) Maximum cooling condition (MAX) ti 40 °C/ ta 35 °C/ 50%

(2) Nominal cooling condition (ARI) ti 27 °C/ ta 35°C/ 50%



Mobile Climate Control
On Road



Big solutions in a small format



PN: 89-0031

EcoLine 8/10 – low profile climate control for minibuses and mid-sized buses

EcoLine:

High performance, low profile, low weight, easy to install. All under an attractive cover.



The EcoLine is the new standard for mini bus A/C. With its improved performance, low weight and low-key

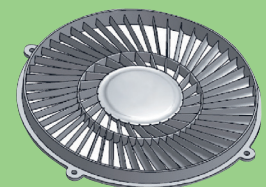
appearance, it is the easy choice if you're looking for a reliable A/C for your minibus.

To keep weight to a minimum, EcoLine models are manufactured with aluminum components and ABS covers. Exceptional engineering has allowed us to lower refrigerant charge, while increasing performance capabilities.



Summary of advantages

- Attractive low-profile design
- Low refrigerant charge
- Low weight thanks to aluminium parts and ABS covers
- Improved performance, using high performance heat exchangers
- Easy to maintain
- Easy to install
- Low product life cycle costs



EcoLine 8 AC/Heat / EcoLine 10 AC Only

MCC's Ecoline series consists of integrated compact roof mounted HVAC units designed specifically for minibus application.

Design Features Include:

- Low weight
- High performance MCX coil technology
- Ease of installation (OEM or retrofit)
- Improved reliability due to reduced hose/fittings

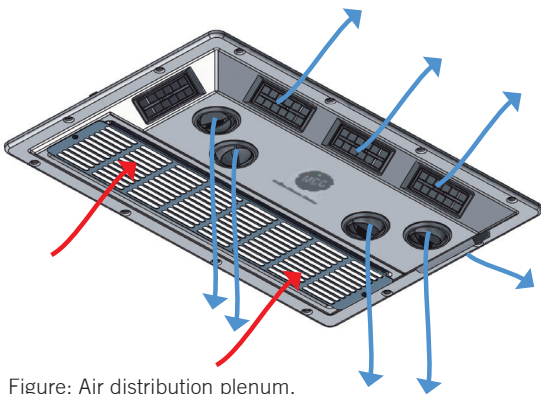


Figure: Air distribution plenum.

The EcoLine 8/10's airflow adjustment options and high performance capacity allows for a pleasant interior climate no matter where you may be.

The EcoLine 8/10's easy maintenance and installation, along with its superior quality and engineering, warrant low life cycle costs, saving you money now and in the future.

The elegant design of the ceiling mounted air distributor allows air to be directed throughout the vehicle through its multi-position louvers.

The tested and proven design of the Ecoline series rooftop A/C will provide reliable service and superior performance now and in years to come.

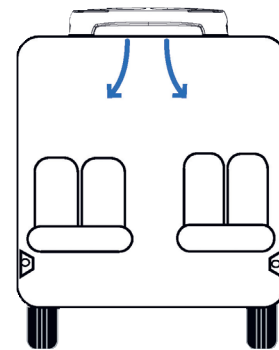
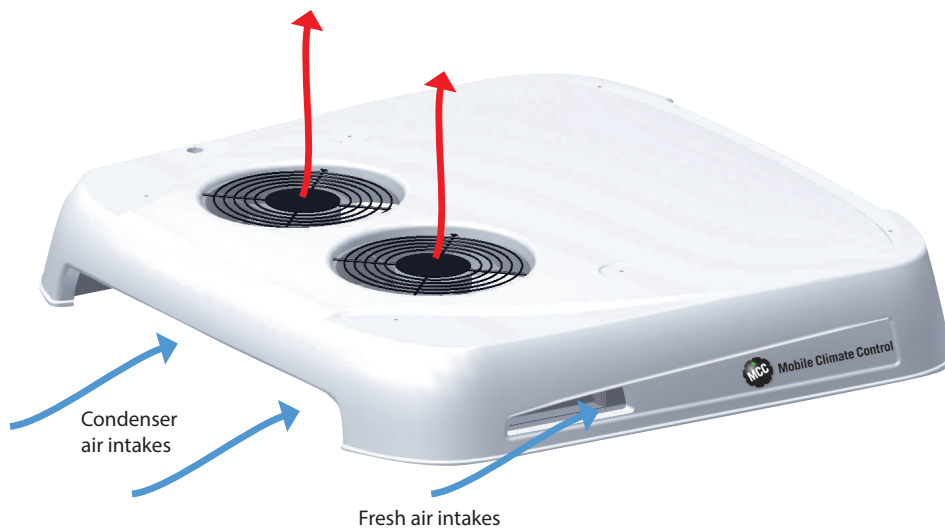
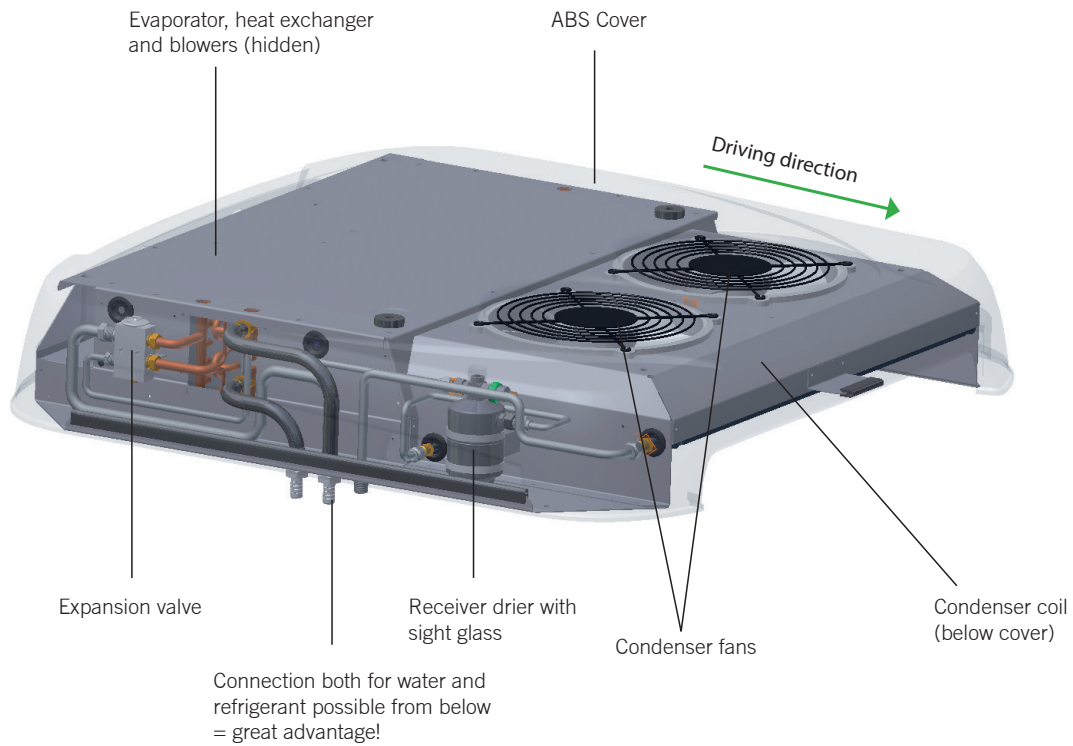


Figure: The EcoLine 8/EcoLine 10 blows directly into aisles of the minibus.

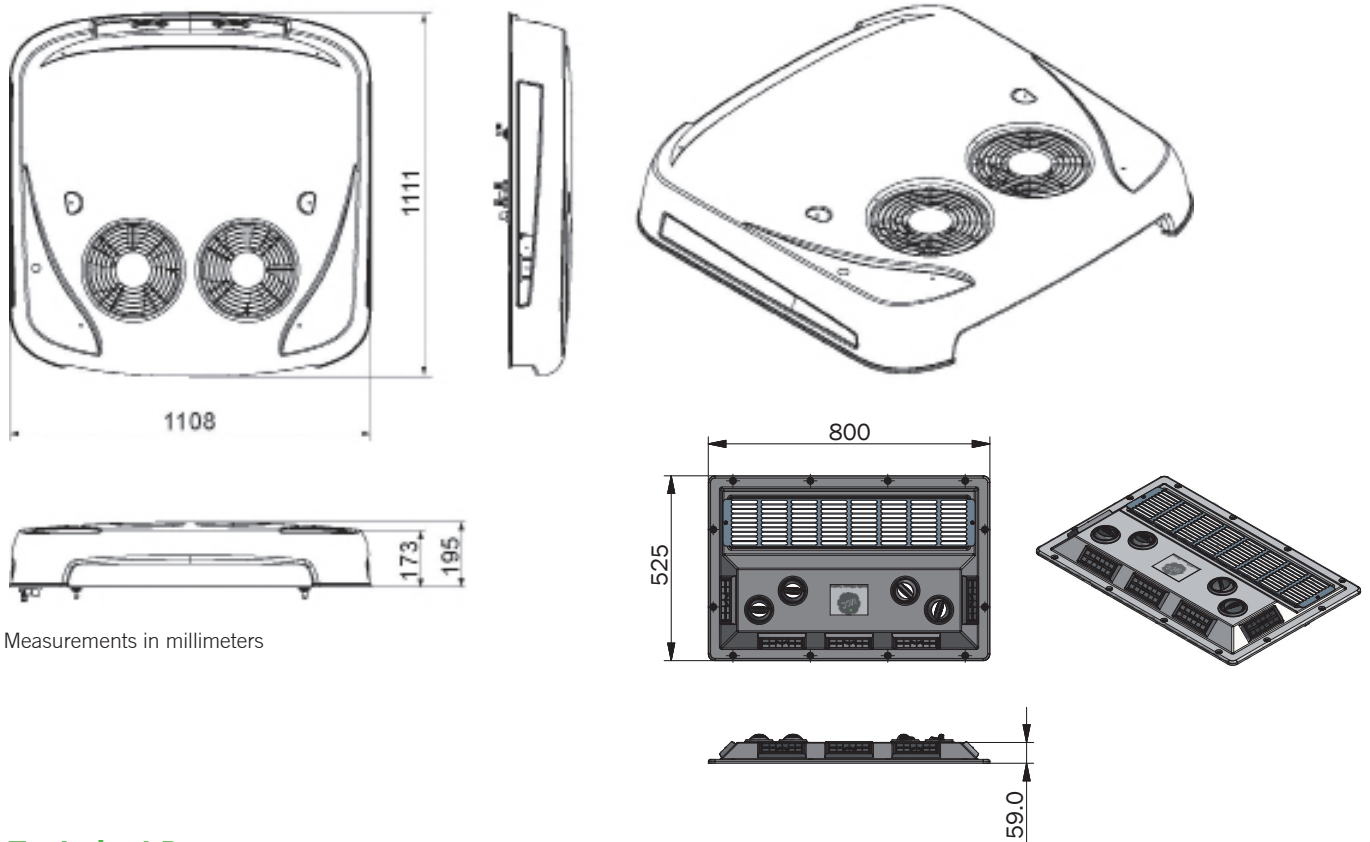
Overview of the components

EcoLine 8/EcoLine 10: Major components



Dimensions

EcoLine 8/EcoLine 10



Measurements in millimeters

Technical Data

	Ecoline 8	Ecoline 10
Application	Conventional A/C	Conventional A/C
Cooling capacity	27000 Btu/hr (8.5 kW) ARI ^[1]	33000 Btu/hr (12 kW) ARI ^[1]
	55000 Btu/hr (16 kW) IMACA ^[2]	60000 Btu/hr (17.5 kW) IMACA ^[2]
Heating capacity	34121 Btu/hr (10 kW)	n/a
Voltage	12/24V	12/24V
Width	43.62" (1108 mm)	43.62" (1108 mm)
Length	43.74" (1111 mm)	43.74" (1111 mm)
Height ^[3]	7.68" (195 mm)	7.68" (195 mm)
Air flow evaporator, max	706 CFM (1200 m ³ /h)	706 CFM (1200 m ³ /h)
Current consumption max	49 A (12V)	60A (12V)
	25 A (24V)	30A (24V)
Weight (total)	106 lbs (48 kg)	104 lbs (47 kg)

[1] ARI conditions: 95°F (35°C) / 80°F (27°C) / 50% RH

[2] IMACA condition: 100°F (38°C) / 90°F (32°C) / 50% RH

[3] + 0.8" (20 mm) for Sprinter bus van rails

Every passenger deserves the best possible vehicle climate with MCC products

Our mission is to create climate comfort by providing exceptional performance





Mobile Climate Control
On Road



Small but powerful



PN: 89-0033

EcoLine 12 – low profile climate control for minibuses and mid-sized buses

EcoLine:

Great performance, very compact, lowest weight for the size, all under an attractive cover



The EcoLine is the new standard for mini bus A/C. With its improved performance,

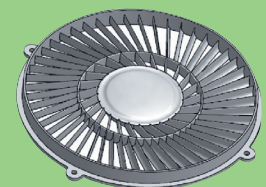
low weight and low-key appearance, it is the easy choice if you're looking for a reliable A/C for your minibus.

To keep weight to a minimum, EcoLine models are manufactured with aluminum components and ABS covers. Exceptional engineering has allowed us to lower refrigerant charge, while increasing performance capabilities.



Summary of advantages

- Attractive low-profile design
- Low refrigerant charge
- Low weight thanks to aluminium parts and ABS covers
- Improved performance, using high performance heat exchangers
- Easy to maintain
- Easy to install
- Low product life cycle costs

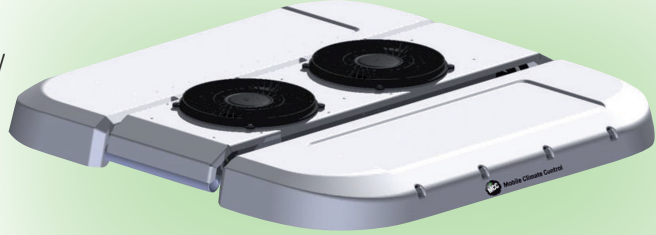


EcoLine 12

The EcoLine 12 is the next level of minibus A/C, specially adapted for minibuses with extra comfort requirements.

Choose between free blow or ducted options. The cooled/heated air blows through ducts, allowing passengers to adjust air flow to their individual preference. With more cooling power it will give quicker cooldown, and of course higher comfort in hot climates. Very low profile.

Comes equipped with four double radial evaporator/heater blowers and two condenser fans.



Features Include:

- larger capacity
- Fully integrated unit
 - with condenser and evaporator
- High performance MCX coil technology

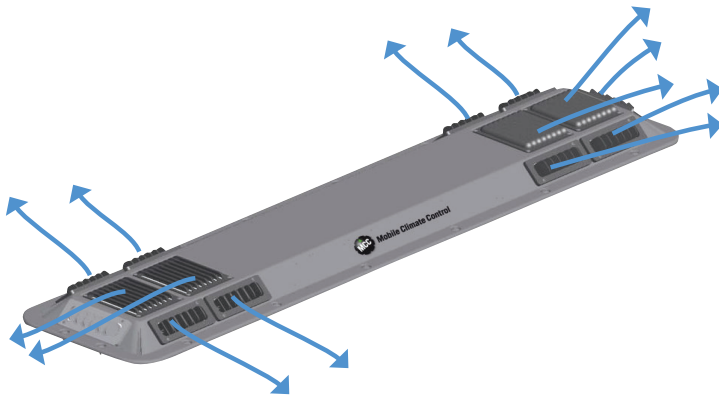


Figure: (Option 1) Air distribution plenum.

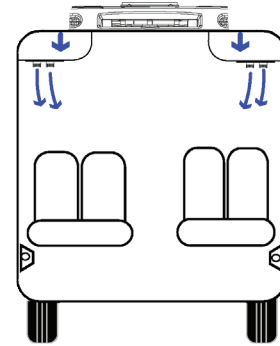
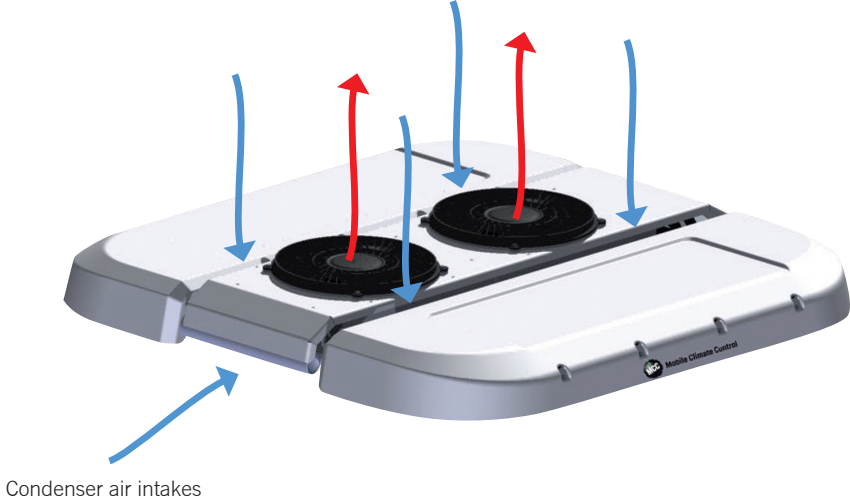
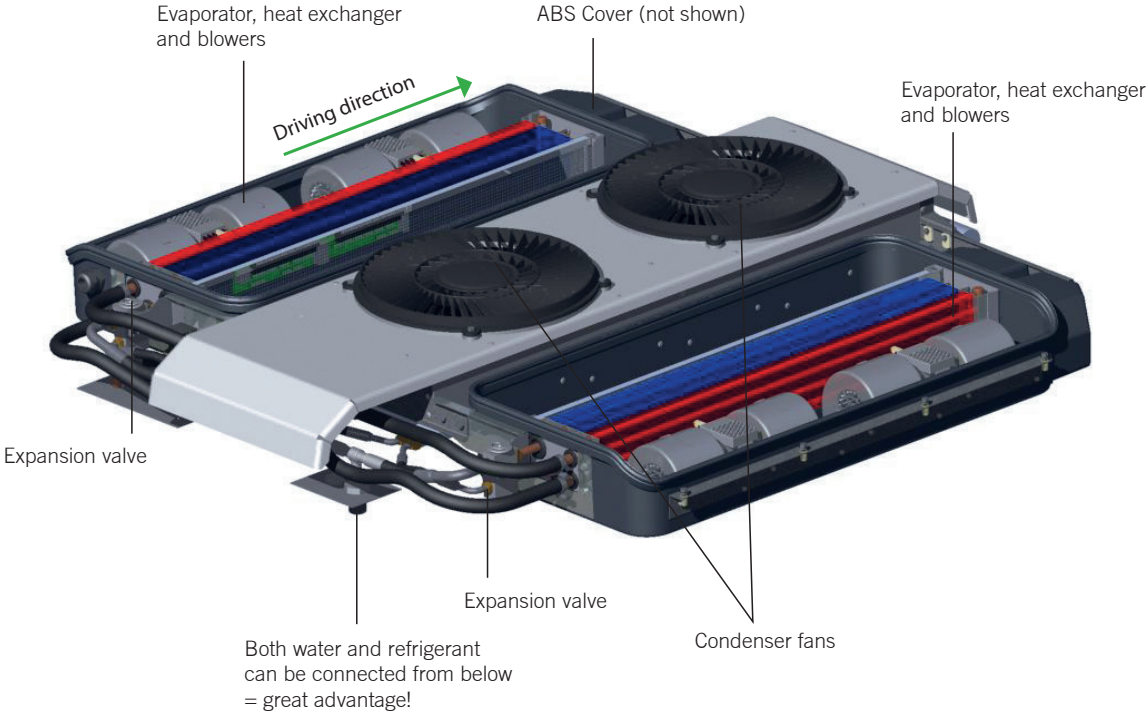


Figure: (Option 2) The EcoLine 12 blows directly into the minibus ducts.

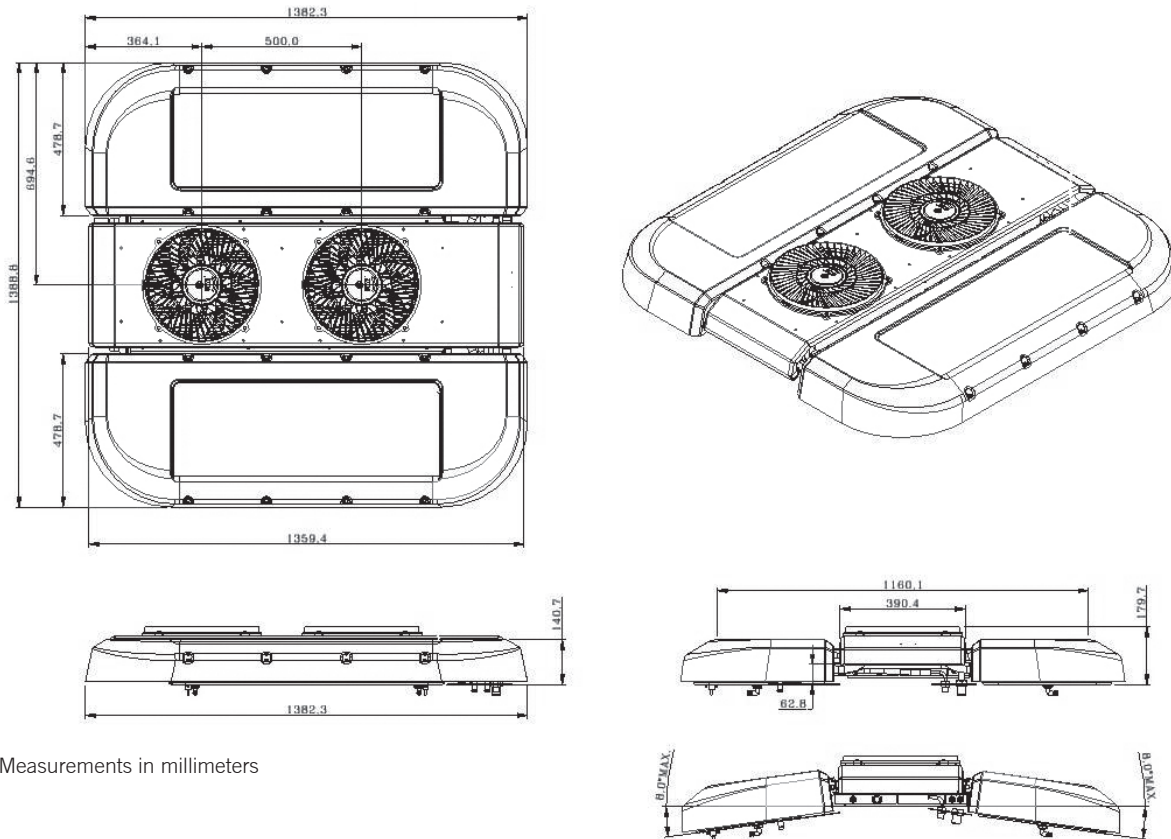
Overview of the components

EcoLine 12: Major components



Dimensions

EcoLine 12



Measurements in millimeters

Technical Data

Application	Minibuses
Cooling capacity	66000 Btu/hr (19.3 kW) IMACA ^[1] 41000 Btu/hr (12 kW) ARI ^[2]
Heating capacity	54000 Btu (15.9 kW)
Voltage	12/24V
Width	54.72" (1390 mm)
Length	54.53"(1385 mm)
Height ^[3]	7.09" (180 mm)
Air flow evaporator, max	1200 CFM (2000 m ³ /h)
Current consumption, max	76A (12V) 38A (24V)
Weight (total)	130 lbs (59 kg)

[1] ARI conditions: 95°F (35°C) / 80°F (27°C) / 50% RH

[2] IMACA condition: 100°F (38°C) / 90°F (32°C) / 50% RH

[3] + 0.8" (20 mm) for Sprinter bus van rails

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