Creating the future of thermal management



HVAC Product Range

Energy Efficiency

Driver Comfort

Passenger Comfort

Flexible Bespoke Design

Complete Vehicle Climate Control

Lightweight Solutions

Grayson THERMAL SYSTEMS

eMOBILITY RANGE

GL1076PG2 Issue 1







Grayson are committed to designing and manufacturing HVAC products that you can count on to be 100% reliable day after day.

From expertly designed and manufactured OE systems all the way to your Aftermarket retrofit solution, you can expect a flexible product range to suit *your needs.*

For us, every customer is individual and unique, meaning that we can take our engineered range of tested and validated HVAC products to create a bespoke solution for you. Over 30 years in the business has given us the knowledge and experience to be prepared for any and every situation.

Whether you are an operator upgrading your fleet by retrofitting with a new HVAC system, or you are an OEM looking for a specific system designed for your new vehicle, we can help. And it doesn't just stop at complete systems; we have a comprehensive range of 'off the shelf' component parts including blowers, boost pumps, compressors, evaporators, and many more ready to be installed in your vehicle.

Our Company Locations

250 EMPLOYEES
ACROSS 3 CONTINENTS

GRAYSON SERVICE CENTRE
FOUNDED *2018* IN BIRMINGHAM, UK
KINGPIN INDUSTRIAL PARK

UK GRAYSON HQ
FOUNDED *1978* IN BIRMINGHAM, UK
257 WHARFDALE ROAD, UK OFFICE

GRAYSON ENGINEERING OFFICE
FOUNDED 2020 IN HONG KONG

GRAYSON R&D CENTRE
FOUNDED *2019* IN CZECH REPUBLIC
POČERNICKÁ, PRAGUE

GRAYSON THERMAL SYSTEMS CORP
FOUNDED *2009* IN FRANKLIN, INDIANA, USA
980 HURRICANE ROAD, USA OFFICE

GRAYSON FABRICATION CENTRE
FOUNDED *1996* IN BIRMINGHAM, UK
WHARF ROAD FABRICATION CENTRE

eComfort300

eMOBILITY RANGE

The new eComfort300 will provide advanced passenger heating and cooling (HVAC) for electric buses, utilising high efficiency reversible heat pump technology. Its modular construction means our new range of E-Bus Heat Pump has the option to include Battery Thermal Management System (BTMS) with heat recovery, minimising waste to deliver lightweight, energy efficient, cost effective HVAC solutions for electric buses.



eComfort

FOR SINGLE DECK AND DOUBLE DECK EV APPLICATIONS.
Includes: Heat Only, Heat and Cool, Plus BTMS option, with the option of simultaneous battery cooling and passenger heating.

LIGHTWEIGHT SYSTEM DEVELOPED FOR ENERGY EFFICIENCY, EASY SERVICE AND MAINTENANCE

PRODUCT FEATURES & BENEFITS

- Island air distribution removes thermal losses from air being blown through insulated ceiling ducts along the vehicle.
- Modular systems offering suitability for 10.8m/35ft, 12m/39ft, 15m/49ft and 18m/59ft single deck vehicles.
- Lower installation cost as there is no requirement for materials or labour to create insulated and pressurised distribution ducts into saloon.
- Direct hot or cold air flow to passengers up to 4m from air distribution island.
- Functionality for simultaneous cooling of batteries and heating of passengers.
- 100% fresh air functionality available.
- PWM regulated fans offering low noise levels during operation.
- Integrated plug and play one unit (pump, water tank, electric heater).
- Hermetically sealed unit with no refrigeration piping around the vehicle.
- Low power consumption maximising range for electric vehicles.
- Modular system offers flexible design to meet exact customer requirements.
- Brushless 24V long-life fans.
- PTC Technology available
- For double deck application, integrated options are available.

Passenger Satisfaction

Energy Efficiency

Lightweight Solution

C300 Model	Weight (KG/ lb)	Dimensions (MM)	Dimensions (Inches)	Refrigerant Type	Nominal Voltage (V)	Ambient Range °C/°F	Available Passenger Cooling	Available Passenger Heating	High Voltage Amps	Low Voltage Amps	Battery Thermal Management (BTMS)	+PTC Heating Options
C300H (400v) Heat only	108 / 238	2230 x 960 x 290	88 x 38 x 11	R407C	400VAC	-5/40 23/104		24kW 82,000 BTU/h	8	70	No	Yes
C300H (600v) Heat only	85 / 187	2230 x 960 x 290	88 x 38 x 11	R407C	600VDC	-5/40 23/104		24kW 82,000 BTU/h	8	70	No	Yes
C300HB (600v) Heat only with BTMS	105 / 231	2230 x 960 x 290	88 x 38 x 11	R407C	600VDC	-5/40 23/104		24kW 82,000 BTU/h	8	70	Yes	Yes
C300HC (400v) Heat & Cool	115 / 253	2230 x 960 x 290	88 x 38 x 11	R407C	400VAC	-5/40 23/104	14 or 21 kW 47,500 or 71,500 BTU/h	24kW 82,000 BTU/h	8	70	No	Yes
C300HC (600v) Heat & Cool	90 / 198	2230 x 960 x 290	88 x 38 x 11	R407C	600VDC	-5/40 23/104	14 or 21 kW 47,500 or 71,500 BTU/h	24kW 82,000 BTU/h	8	70	No	Yes
C300HCB (600v) Heat & Cool with BTMS	125 / 298	2230 x 960 x 290	88 x 38 x 11	R407C	600VDC	-5/40 23/104	14 or 21 kW 47,500 or 71,500 BTU/h	24kW 82,000 BTU/h	8	70	Yes	Yes

Environmentally friendly solution

100% Fresh Air Option Available
Contact us for more information

eMOBILITY RANGE

PTC Heaters

eMOBILITY RANGE

PTC HEATER

Overview

The PTC Heater is suitable for use in Hybrid and Full Electric Vehicles offering staged heating to be as efficient as possible to reduce inrush current. It provides localised spot heating and will not overheat due to its self-regulating heat source. Using an integrated 24VDC blower the unit is CAN Controlled for heat output and blower speed. With its compact size it is designed to be mounted under your vehicle seat.

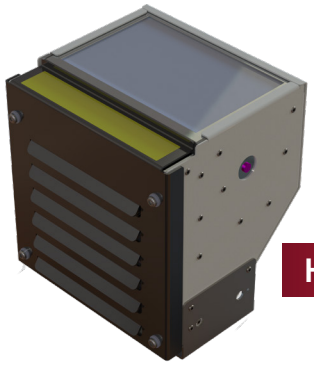
Technical Specifications

Working Voltage	Fan Control Speed	Blower max air flow	Peak current draw	Max Heat Capacity	Min Ambient temp	Max Ambient temp	Thermal cut out temp
24V nominal (20-32VDC)	2 Speeds	300 m^3/h	80 amps on start-up 50 amps working	1.25kW 4.231 (BTU/h)	-25°C -13°F	+50°C 122°F	86°C 186.8°F

Product Part Number	L (mm) (inch)	W (mm) (inch)	D (mm) (inch)	Weight (kg) (lb)	Cooling (kW) (BTU/h)	Heating (kW) (BTU/h)
HP-6665-000	241 9.5	217 8.5	194 7.6	3.4 7.5		1.25 4,265
HP-6657-000	249.5 9.8	369 14.5	188.5 7.4	4 8.8		1.25 4,265

PTC Technology is available on all:

- **Sidewall Heaters**
- **Driver Cab Heaters**
- **Floor Heaters**
- **Door Heaters**
- **Passenger Saloon Heaters**
- **eComfort 100**
- **eComfort 300**



HP-6665-000



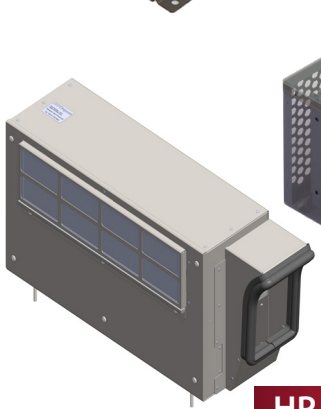
HP-6657-000

CONTROL

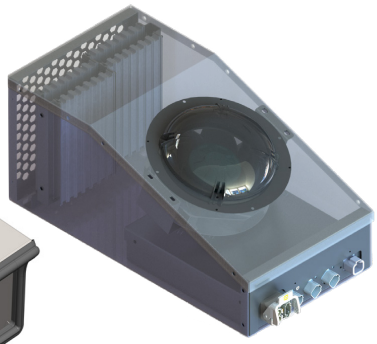
The heater module is supplied with an electrical relay

Floor Heaters

- Bespoke or Standard product available
- Lightweight
- Long Life Blowers
- Fresh Air Option
- PTC Technology available for instant heat
- Slimline
- Flexibility on design, packaging and location
- Coolant based and PTC heater options



HP-4581-200



HP-TBC

Quieter operation

Environmentally friendly solution

Faster warm up time

Plug & Play Solution

Compact design

Self-regulating no overheating

Built to deliver

Suitable for Hybrid & Full Electric Vehicles

eComfort 100 Range

Roof Mounted

designed to the highest standards
built **to deliver**
eComfort

Technical Specifications

Model	C100 Cool Only 24V	C100 Slim Cool Only 24V	C100 Heat & Cool 600V DC	C100 Heat Only 600V DC	C100 Cool Only 600V DC	C100 Low Ambient Heat / Cool 600V DC	C100 Cool Only Fresh Air	C100 Heat & Cool Fresh Air
Dimensions (mm) & Inches)	1300x1002x226 51x39x9	1300x650x226 51x26x9	1300x1002x226 51x39x9	1300x1002x226 51x39x9	1300x1002x226 51x39x9	1300x1002x226 51x39x9	1300x1002x226 51x39x9	1300x1002x226 51x39x9
Weight (kg & lb)	47 104	50.5 111	57.5 127	53.5 118	53 117	61 134	48 105.6	48 105.6
Refrigerant	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Cooling Output (kW & BTU/h)	2.7 9000	2.7 9000	4 13500		4 13500	4 13500	3.8 12966	3.3 11260
Heating Output (kW & BTU/h)			4 13500	4 13500		2.5 8500		4 13500
Provides heat at ambient temperature of up to:			0°C 32°F	0°C 32°F		-20°C		35°C 95°F
Provides cooling at ambient temperature of up to:	40°C 104°F	35°C 95°F	40°C 104°F		40°C 104°F	40°C 104°F	40°C 104°F	40°C 104°F

Standard C100 EC-6549-000

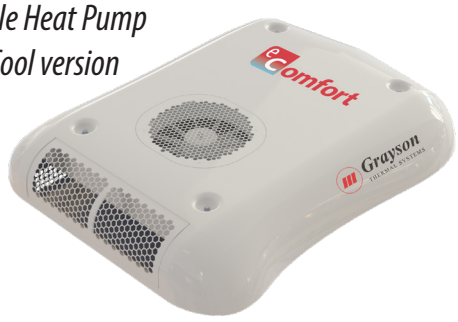
Cool only version



The eComfort 100 Cool only is an air conditioning unit designed primarily for driver cooling. 2.7kW of constant cooling performance is delivered in an extremely low package height of 226mm/8.9inches. Simple fit and forget system delivered fully charged and ready to go.

Standard C100 EC-6649-000

Reversible Heat Pump
Heat & Cool version



The eComfort 100 Heat & Cool is a Driver cabin reversible heat pump capable of heating and cooling the driver cabin. This lightweight solution is delivered in an extremely low package height of 226mm/8.9inches.

Small rooftop footprint

Environmentally Friendly Solution

Lightweight Solution

Driver comfort

2 Year Warranty Extended Available

Plug & Play Solution

Environmentally friendly solution

100% Fresh Air Option Available
Contact us for more information

eMOBILITY RANGE

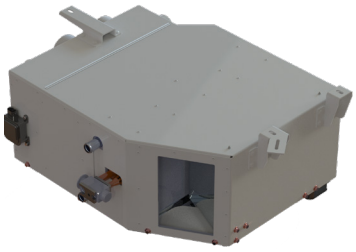
Defrosters & Heat Pump Front Box

Technical Specifications

Product Part Number	L (mm) (inch)	W (mm) (inch)	D (mm) (inch)	Weight (kg) (lb)	Cooling (kW) (BTU/h)	Heating (kW) (BTU/h)
HP-3556-000	525 20.6	220 8.6	440 17.3	9 19.8		7 23,884
HP-6433-000	748 29.4	507 19.9	307 12.1	19.5 42.9	4 13.648	18 61.419
HP-6451-000	592 23.3	695 27.4	310 12.2	17 37.4		7 23,884
HP-3601-200	537 21.1	685 27	203 8	26 57.3		7 23,884
HP-3344-000	525 20.6	220 86.6	440 173.2	15 33	4 13.648	18 61,419
HP-6684-000	1152	265	545	45	3kW @ 45°C Ambient	4.5kW @ 5°C Ambient



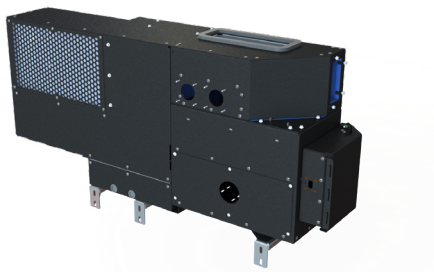
HP-6451-000



HP-6433-000

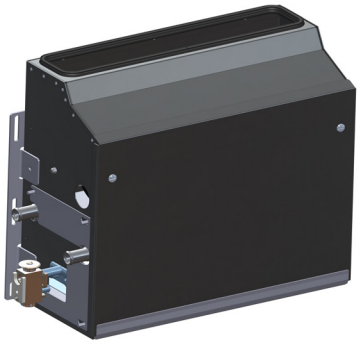
PRODUCT FEATURES & BENEFITS

- Air Distribution Options
- Bespoke or Standard product available
- Lightweight
- Long Life Blowers
- Fresh Air Option
- PTC Technology available for instant heat
- Slimline
- Flexibility on design, packaging and location



HP-6684-000

Excellence in ***product quality*** and service.



HP-3344-000

e MOBILITY RANGE

EWH Range

EWH ELECTRIC WATER HEATER

e MOBILITY RANGE

The Electric Water Heater (EWH) is an instant source of clean heat generation. This heat can then be transferred to driver or carriage for passenger and driver comfort.

By removing the need for a diesel-powered heater, the EWH enables vehicles to use less fuel, emit lower levels of pollutants, and to reduce noise levels. EWH's are suitable for hybrid applications ' and BEV'S (Battery ElectricVehicles) / FCEV's Fuel Cell Electric Vehicles) when the heat source from the engine is not constant.



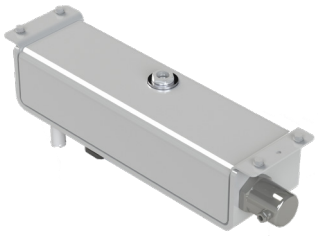
WP-6550-000

Technical Specifications

Standard Power Outputs	(600V DC Version) 5kW, 10kW, 20kW, 25kW, 30kW
Voltage	300 - 800V DC
Vehicle Type	Hybrid, Electric & Fuel Cell

PRODUCT BENEFITS & FEATURES

- Removal of diesel heater
- Utilises waste energy to heat the vehicle
- High Voltage Capability (up to 800v)
- Easy Fitment
- No Consumables
- No Annual Servicing
- Compact Design
- Small Envelope Package
- Fully potted terminal box
- Variety of kW outputs
- Cost Effective vs. Diesel Heater



Plug & Play Solution

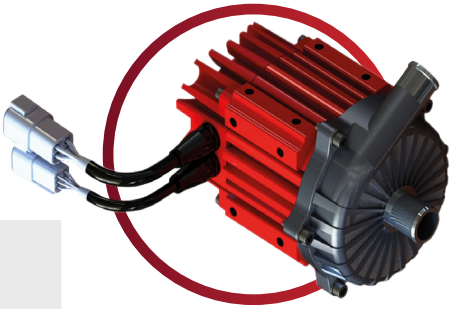
BC-6639-000
Plug and Play Header Tank with integrated Water Heater

EWP Range

e WATER PUMP

Overview

Grayson Thermal Systems 24V electric water ethylene-glycol (WEG) pump range has been developed specifically for hybrid, electric, hydrogen and ICE (Internal Combustion Engine) vehicle applications. The pumps, suitable for global use in a variety of operating and environmental territories, are lightweight whilst offering long motor life, variable flow control and exceptional corrosion and water resistance. Mounted in a number of orientations, without impacting reliability or performance.



WP-6550-000

Product Part Number	L (mm) (Inches)	W (mm) (Inches)	D (mm) (Inches)	Weight (kg) (lb)	Amb Capability (°C) (°F)
WP-3970-000	203 8	159 6.2	148 5.8	4.1 9	-20°C to +95°C -4°Cto 203°F
WP-6550-000	221 8.7	159 6.2	148 5.8	5 11	-20°C to +95°C -4°C to 203°F
WP-1017-300	177 7	68 2.6	84.5 3.3	0.53 1.1	-40°C to 70°C -40°F to 158°F
WP-1017-500	177 7	68 2.6	84.5 3.3	0.53 1.1	-40°C to 70°C -40°F to 158°F
WP-1017-000	255 10	120 4.7	149.5 5.8	3 6.6	-40°C to 90°C -40°F to 194°F
WP-1017-800	185.5 7.3	135 5.3	179 7	3.9 8.6	-40°C to 105°C -40°F to 221°F





Please see our Water Pump Brochure for more technical specifications.

Controllers



Automatic Analog Control Unit
Electronic Blower Speed Regulator

FEATURES & BENEFITS

The control unit features two control knobs, six push buttons and an LCD screen, as below:

- Temperature control knob for selecting the desired temperature
- Air flow control knob (the speed control ventilation is supplied with electronic blower speed regulator; the knob has also an OFF and AUTO mode position)
- Air distribution push button
- Air conditioning push button
- Recirculation push button
- Defroster push button
- Over pressure push button (which activates an auxiliary outside air fan)
- External temperature push button
- LCD: customised icons, TN, Transflective Positive, 12:00 or 6:00 o'clock viewing direction
- When activating a function, the relevant icon becomes visible on the LCD display.

The software mathematical model receives information from four different temperature sensors:

- Cabin air sensor (internal)
- Outside air sensor (external)
- Mixed air sensor
- Anti-icing temperature sensor

The control unit can be supplied either with metallic frame or clips on the rear box



At Grayson we have a dedicated and experienced part sales department to process orders quickly and efficiently.

Call our parts desk on 0121 700 5617 or email customerservices@graysonts.com





GRAYSON THERMAL SYSTEMS UK

Wharfdale House
257 Wharfdale Road
Tyseley, Birmingham
B11 2DP

t +44 (0)121 700 5600 **f** +44 (0)121 700 5601
e sales@graysonts.com **w** graysonts.com

GRAYSON THERMAL SYSTEMS CORP USA

980 Hurricane Road
Franklin, Indiana
IN 46131

t +1 (317) 739-3290 **f** +1 (317) 739-3281
e sales-northamerica@graysonts.com
w graysonts.com