

**Caldotherm**  
Temperature Control

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[www.caldotherm.co.uk](http://www.caldotherm.co.uk)

## 24V All-Electric *SPOTCOOL*

### A new approach to cab climate control

*Spotcool* is a completely electrically-powered air cooling and heating system. Originally designed to meet the requirements of train operators, it delivers either cooled or heated air directly to the driver.

Apart from the long-life brushless fans, it has no moving parts. No refrigerants are used, so no compressor, hoses or valves to leak or fail. Maintenance is reduced to just an annual air filter change.

Cooled air is produced using solid-state thermoelectric devices. When a DC current is applied, heat is moved from one side of the devices to the other.

When in cooling mode, heat is removed from the 'hot' side and vented to the vehicle exterior. The "cold" side is used to cool the air flow to the driver.

At the flick of a switch, the process is reversed, and *Spotcool* instantly converts to an effective cab heater or demister, providing year-round benefit.

Easily retrofitted to most 24V vehicles, the main unit can be fitted to the cab ceiling, back panel or under-stair.

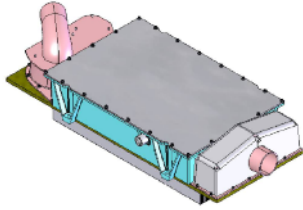
All that is required is electrical connection to the battery or power distribution studs, suitable inlet/outlet ducting and a 100mm extract vent to the vehicle exterior.

#### ***Performance***

Maximum Power Requirement:	936 watts / 39 Amps (Steady State)
Input Voltage:	24 volts DC
Maximum Cooling Power:	570 watts
Maximum Heating Power:	1400 watts
Maximum Cooling Performance:	-20°C From Cab Ambient (dependent on fan speed)
Maximum Heating Performance:	+40°C From Cab Ambient (dependent on fan speed)
Airflow:	Up to 120m <sup>3</sup> /hr

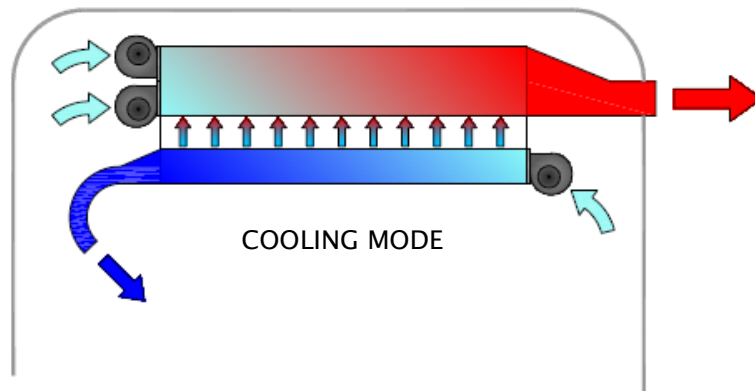
#### ***Mechanical***

Weight 22 Kg. Dimensions 300 wide x 600 long x 125 deep

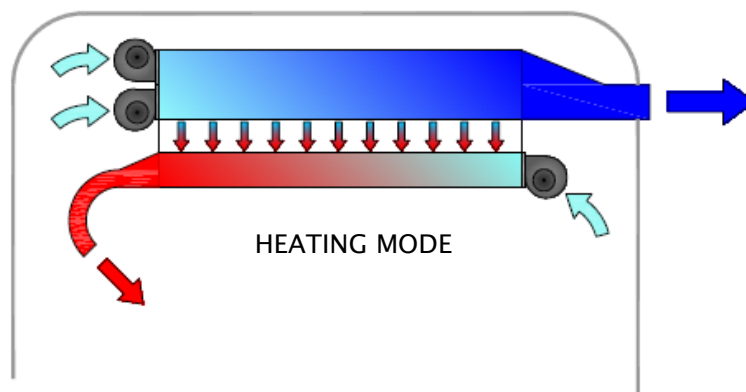


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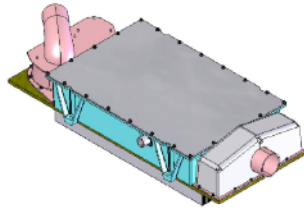
**Spotcool:**  
**How it Works**



When cooling mode is selected, current passes through the solid-state thermoelectric devices, which get hot on the upper side and cold on the lower side. Fans blowing over the upper side expel the heat to the exterior of the vehicle. Air blown over the lower side is cooled and directed towards the cab.



When heating mode is selected, the current is reversed. The upper side gets cold, and the lower side gets hot. Fans blow over the upper side, expelling cooled air to the exterior of the vehicle. Air blown over the lower side is heated and directed towards the cab.



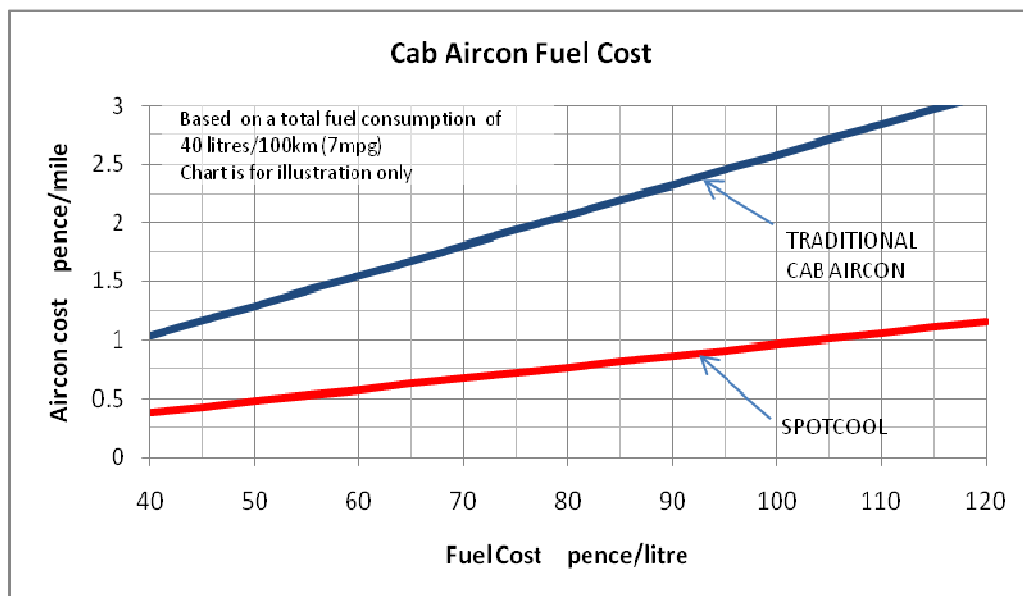
## Spotcool:

### Saves Fuel

A traditional cab air conditioning system requires a compressor to be mechanically driven by the engine. The additional engine load is typically around 3 kW, or 4 BHP, and can add 3–4% to the overall fuel consumption.

Spotcool requires just 1 kW of electrical power from the alternator, with a resultant engine load of around 1.5 BHP.

The fuel cost of Spotcool is therefore less than half that of a traditional system.



### Is Easy to Install

Spotcool is a self-contained unit with no pipework.

It can be mounted in almost any orientation.

No large condenser aperture is required – just a single 100mm dia hole for an outlet vent.

It can be removed and refitted if the vehicle is sold on or scrapped.

### Has Low Initial Cost

Basic kit includes harness, switches and 1m inlet/outlet ducts.

### Has Low Maintenance Costs

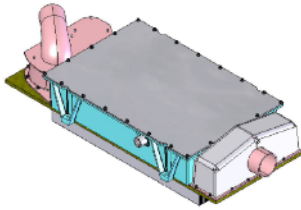
Long life brushless fans – rated at 60,000 hours.

Easy-change air filter – once per year per filter set.

No gas to leak, and no other moving parts to fail.

### Provides both Heating and Cooling

Simple dash switch operation instantly converts Spotcool to an effective cab heater and demister, for year-round benefit.



**Spotcool:**  
**Control**



The *Spotcool* control system is normally supplied with two dash rocker switches:

FAN OFF/SLOW/FAST  
HEAT/OFF/COOL

The fan can be operated without heating or cooling selected.  
Heating or cooling will only function if the fan is operating.  
An air thermostat prevents *Spotcool* operating unnecessarily.  
The thermostat set temperature is adjustable and tamperproof.  
Alternative control options are available.

