

STREAM DEFENCE
2022

Product Catalogue

<https://streamdefence.co.uk>



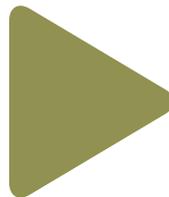
INNOVATIVE

OUR MISSION

“delivered to theatre, fit for action”

At Stream Defence, our ultimate mission is to build and deliver innovative cooling and heating solutions that will maximise the survivability and mission success of our soldiers and minimise energy usage, enhance user experience and give good value for money.

Communication is critical in operational environments - our mission is also to build real time communication platforms that enable all other defence assets to be most effective.



ETHOS

“Integrity in every area of business”
“Optimised qualities and value through design”
“Trust and empowerment of stakeholders”

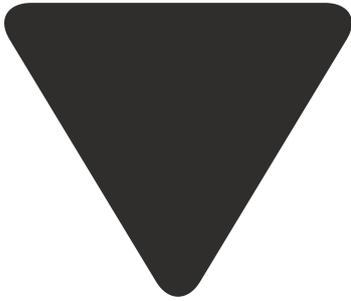
Stream Defence

Stream Defence was established in 2010 following 20 years of creating successful engineering solutions for challenging situations in all areas of heating, cooling, acoustic and environmental applications. Our experience in harsh marine and automotive environments has stood us in good stead: the principles apply to military requirements, particularly in austere conditions, and the application of COTS products from other markets has proven an advantage.

Operating from London, the south coast, and East Anglia, with excellent access to road, rail and air communications we are ready to take on your engineering challenges. Stream Group is also active in marine HVAC, control systems and information technology.



SOLUTIONS FOR DEFENCE



Our design experience and capability, understanding of the physics, thermodynamics, fluid movement, electronics and acoustics, has enabled us to consider all aspects of each project individually to combine the best in terms of energy efficiency, cost of raw materials, ease of use and sympathy with the application in question. Proper selection and justification of the technical design strategy is a crucial element of the final system design and selection process.

Our portfolio includes cooling systems for open vehicles, body worn kits for bomb disposal suits, tactical cool boxes using refrigeration for storage and transport of blood and medical products, and personal heating systems for open vehicle crews, marine deep diver recovery reheat, and deployed facilities.

The Stream Defence brand comprises a complete range of customised communication, medical refrigeration, soldier heating and cooling systems, with products to suit specific defence projects and applications.

Our products are most suited to armoured vehicles, field medical, communication and maintenance shelters, including armoured personnel transport, where absolute reliability is mission critical and performance cannot be compromised.



PROFILE



M12DCe

M12DCe tactical fridge for 7 litres of blood. Will hold temperature during a desert night at 30°C without external power.

The classic CoolBOX M12DCe uses micro refrigeration compressor technology for reliable maintenance of temperature with optimal power efficiency. Built-in Lithium-Ion batteries maintain cooling for up to 36 hours in moderate temperatures, 12 hours overnight in the desert at 40°C+. The unit was designed specifically for blood transport at 4°C cooled storage, and is powered by vehicle, solar or utility electrical supplies.

NSN 4110-99-217-4289



External Display and Alarm

The external display on this unit allows instant appraisal of the current operating temperature, while the alarm will alert the user if the system has gone out of range. This can also be disabled in covert applications.



VISI software (PC/Android)

All of the MxxDCe series fridges include a data logger saving to SD card. Stream VISI software is supplied to make reporting easy.

SD card files are .CSV standard, so can be analysed in your own application if security constraints limit software use. Air and cold chamber temperatures, battery monitor and G forces are logged.



M16DCe

Dual compartment CoolBOX for separation of products, or dual temperature storage.



RUGGED COOL BOX ▲

The M16DCe coolbox has 2 cold chambers which can be utilised to segregate blood from other medical fluids or as two independent systems for fridge and freezer applications. The temperature control and data logging is specific to each section.

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Colour Touchscreen

The colour graphical display defaults to temperature, but can be touched to show 1 hour/24 hour history graph and battery use/charge over time.

The two cold chambers are presented individually on the display and in the data log.

External Power

As with all our rugged fridges, this unit is powered by its own internal batteries which are charged from 12, 24 or 28 volt DC external source. The unit is also supplied with a universal input 110-240v AC 50/60Hz adapter for utility power.





M29DCe

For rapidly deployed critical trauma care units requiring transport and storage of blood and drugs supplies.

M29DCe is intended for rapidly deployed applications such as forward operating base surgical facilities. 24 litre capacity. Graphical touch screen and data logger. M29DCe has more thermal insulation than tactical models so can retain its temperature for longer without external power.

FOB FIELD HOSPITAL



M29DCe Blood Fridge

- ~ 24 litre cooled storage volume
- ~ 12, 24, 28v DC power source
- ~ SD card data logging
- ~ Stream VISI software
- ~ 100-240v 50/60Hz PSU included

M45DCe



M45DCe

- ~ 45 litre cooled storage volume
- ~ 12, 24, 28v DC power
- ~ 110-240v AC power
- ~ SD Card logging (software included)

The colour touch screen display is very easy to use and shows ambient and fridge temperatures, battery life and charging voltages.

The M45DCe is for rapid deployment surgical facilities. It will replace existing end of life equipment. Carrying 45 litres of blood or drugs in transport, usage or storage. It is well insulated such that it can keep its temperature for long periods of time, particularly in an air conditioned room or in the shade.



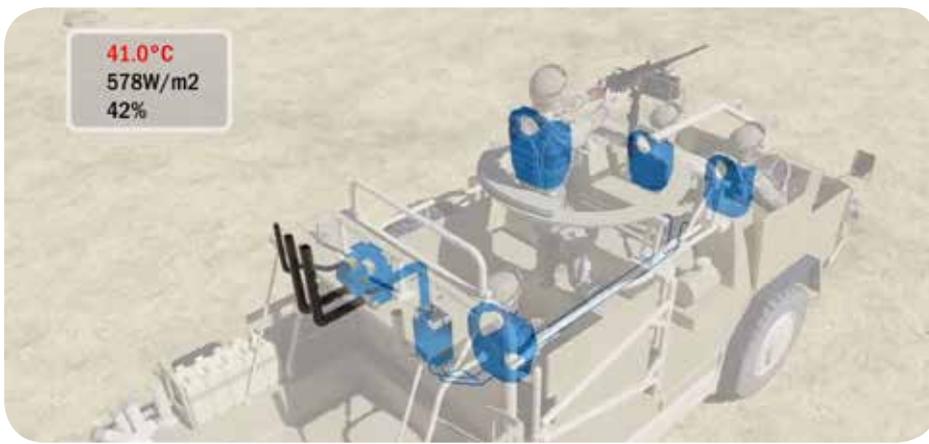
Large Cold Chamber

As standard, the cold chamber has four baskets on two levels. Baskets can be supplied in other configurations to suit specific requirements, including special holders for glassware and fragile vials.



External Display

This unit has an external display on the front face of the box for instant evaluation of the temperature in the cool chamber, and battery/supply status.



Crew Cooling

Soldier has cooled air feed direct to air layer integrated with the tac vest, air vest or by means of a LapPAD. The ManPAC 2R4 cooling unit supplies temperature controlled air through insulated hoses to each station on the vehicle. The hose connector is a 'zero touch' type which detaches freely if the user needs to dismount quickly.



Crew Heater Kit

This view shows the components of the Crew Heater system - ManPAC 2D1 heater, powered Air4 blending unit, and delivery hoses to tactical vest.



Crew Heating

For deployment in low temperatures, the ManPAC 2D1 diesel heater system is fitted to the vehicle in place of the cooling unit to distribute temperature controlled warm air to each individual soldier through insulated pipes by means of an air layer or LapPAD.

CREW HEAT & COOLING OPEN VEHICLE

“Ultimate survivability in an austere environment, whether it be hot or cold, is defined by the conditions in which a soldier has to operate.”

Our ManPAC Crew Cooling system is for open or semi-open vehicles, where traditional vehicle air conditioning cannot be used. It is designed so that the soldier has cooled/dehumidified air supplied to an air layer in the tactical vest (for cooling) or by means of a LapPAD for heating. The cooling unit and insulated ducts can be fitted to existing vehicles

Our heating/cooling systems will dramatically affect outcomes by ensuring that the soldier's mind and body can function optimally to increase mission success and survivability.



LapPAD

The lapPAD is designed to be used when the soldier is sitting in a vehicle. For top gunners a 'flatiron' air outlet is utilised. For heating applications, these are simpler alternatives to bodyworn systems.



ManPAC 2D1 heater fit

ManPAC 2D1 heater located in a tactical vehicle.



SURVIVABILITY & LETHALITY



CREW COOLING



Crew Cooling

Improves crew condition in closed vehicles. The system works effectively with hatches open or closed.

Feeding cooled and dehumidified air direct under soldiers armour has serious benefits for operational efficiency.



ManPAC 2R4

24v DC micro air cooling unit for two soldiers.



COOLING DIRECT TO BODY

Example plate carrier/tac vest with integrated air layer and quick disconnect 'zero touch' sensor air coupling

CLOSED VEHICLES FIXED INSTALLATIONS



ManPAC 2R4 & Tac Vest

ManPAC 2R4 and 4R4 24v powered cooling units are the core components of the crew cooling system. From the cooling unit, air flows in insulated ducts to each crew seat and station. From there, individual fan control stations regulate the flow to each crew member.



1EOD Bomb Suit Cooler

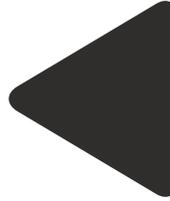
The smallest personal refrigeration cooling unit, developed for EOD operators. Weighing 3.95kg, hardly more than traditional fans, it is transformative. The cooling and dehumidification effect makes it sustainable to wear a heavy suit in $>40^{\circ}\text{C}$ conditions for as long as is needed.



Features

- ~ 175-225w cooling power
- ~ cooled, dried air to head and body
- ~ acoustic silencer to helmet feed
- ~ SD card data logging
- ~ Stream VISI software included
- ~ Batteries and charger included
- ~ supplied in carry case

Can fit most existing suits.



SOLAR POWER ON THE MOVE

ManPAC ES systems provide solar charged battery power on the move. ManPAC ES is hand portable, and packs a 2.5kWh punch, sufficient to power M45DCe or M12DCe blood fridges for 36 hours without charge. With solar panels deployed, continuous use is possible.

ManPAC ES can also be charged from external sources. Any 12-28v DC supply can be utilised to charge the power source.



Inverter

ManPAC ES can be supplied with built in 230v AC 50Hz inverter supply capable of 1000w output.

The unit is fan cooled for reliable operation in high ambient environments.



Folding Solar Panels

Two 100w folding panels are supplied with each ManPAC ES.

Field replacement panels are also available.

CREW HEAT/COOL & POWER COMPONENTS



ManPAC 2D1

Hand portable rugged fuel fired self contained heater unit. Used standalone to heat bivvy and crew spaces, and as part of Crew Heater systems on-vehicle.

Marine version available for in-the-RIB deep diver recovery heating.



ManPAC 4R4

24v micro air cooling unit for four soldiers and larger spot-cooling loads.



ManPAC 8RD

Diesel engine powered packaged AC and generator systems for armoured cars. Up to 9kW of cooling and 100A at 24v of electrical output.



IR Sensor

Sensing the user's body temperature directly through the air outlet prevents thermal shock injuries.



Air Inlet Connector

Zero touch quick release connector allows instant exit from the vehicle, while providing good airflow and body temperature sensing.



ManPAC 300P

Our smallest solar power battery station. Complete with 300w 230v inverter and 24v DC output. 330Wh battery.



ManPAC Diver Heater Blanket

Insulated wrap around full length diver heater blanket. Drop your dive harness and bottles, wrap the 1M205 around, connect the 2D1 heater running on batteries, and you can re-warm the coldest diver during RIB transit back to base.



Air4

Air4 blending mixer box



Tactical Vest CoolLayer

Standard load carriage tactical vest equipped with Stream CoolLayer air distribution.



Heater connector to Building

Typical ManPAC co-axial duct connector for fixed structure heater connection.



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