TETHYS

Bringing thermal comfort to employees

ACTIVE TEMPERATURE CONTROL FOR EXTREME CONDITIONS

Mission

Improving safety, comfort and human productivity in extreme environments thanks to cutting-edge thermal control technology.

TETHYS S.A.S.

950 av Roumanille
Biot, France

www.tethys.cool

+33 (0) 6 23 14 97 29
info@tethys.cool

GESTION THERMIQUE POUR LES COLLABORATEURS

Tempesta is a compact, silent, active thermal regulation system integrated directly into jackets, uniforms or PPE. It enables the user to maintain the thermal output desired by the wearer, whatever the external conditions (from -20°C to +60°C), thus improving the comfort, health and safety of heat-stressed professionals.

Based on proven technology, Tempesta is the most advanced reversible thermal control device for optimizing the well-being of the human body.

Born in the space and nuclear industries and optimized for the most exposed jobs on Earth

KEY BENEFITS

- -25% lower operating costs
- -20% lower risk of accidents
- +15% productivity

PERFORMANCES

Rapid adaptation:
(-20°C in 20s)
Customizable power (15°C to 55°C)

SMART

You set your comfort preferences, Tempesta does the rest. The system adjusts its power in real time according to your choice.

ULTRA-LIGHT

Total weight <1.8Kg (including batteries)
-> the best thermal power/gram ratio.
Invisible under clothing, does not impede movement.

KEY INNOVATION

Unlike passive solutions, Tempesta is based on an advanced architecture combining :

- Mechanically pumped fluid loop
- Thermoelectric modules for Peltier effect
- Miniaturized heat exchangers in direct contact with the fluid
- Closed-loop control driven by user setpoints

Inspired by space and nuclear thermal control systems, this architecture amplifies exchange efficiency.

SCIENTIFIC BASIS

Design based on published scientific studies on heat stress and skin conductance:
Building and Environment (2011)
Thermal Biology (2019)
Physiology & Behavior (2016)

THERMAL MANAGEMENT FOR EMPLOYEES

COMPONENTS

- 1 adjustable vest
- 2 thermo-fluidic circuits (front + rear)
- 12 active evaporator heat exchangers (in contact with the body)
- 2 active condenser heat exchangers (placed in the ventilated zone)
- 16 Peltier modules (TEC12701 / 12703 / 12706)
- Micropump, fans, control electronics
- Power supply: battery (5V, 74 Wh), runtime >3h
- Control interface: potentiometer with dynamic heating/cooling changeover

MEASURES

Sizes

XS-S

M-L

XL-XXL

Length

57cm

67cm

77cm

PATENTED TECHNOLOGY

WO 2024/141723 A1

THERMAL PERFORMANCE

Capable of absorbing up to 50W of thermal power.

BATTERY

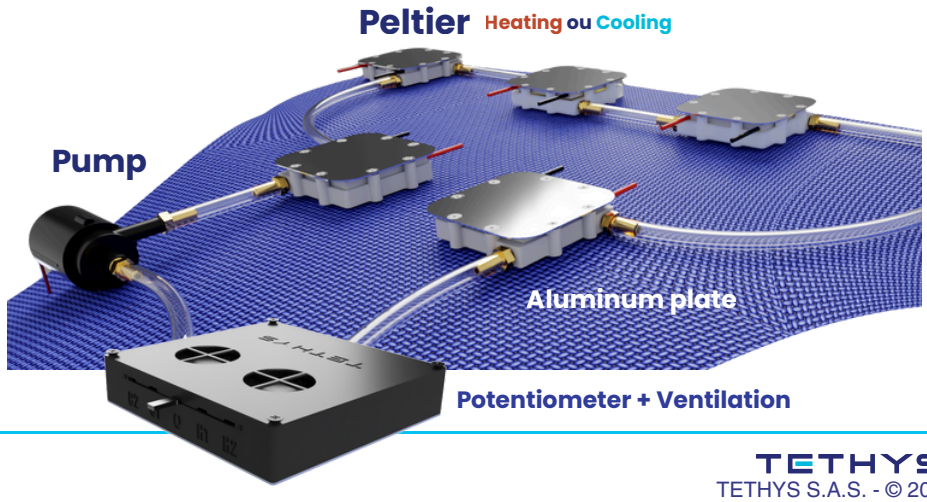
Autonomy from 3 to 6 hours depending on use.
No less than 3 hours of continuous use.
Replaceable battery for continuous use: double battery set available.

CSR

3-year product life guaranteed, fully recyclable; +60% energy efficiency compared with air-conditioning systems

SPECIFICATIONS

Parameter	Value
Total weight	< 1750 g
Max. thickness	<10 mm (body surface)
Noise level Power	< 40 dB
supply	5V DC
Max. current	< 9,0 A
Thermal control	PID with Peltier modules
Working fluid	Water
Safety	Very low voltage, fail-safe system
Thermal power	50W



TETHYS

TETHYS S.A.S.

950 av Roumanille
Biot, France

www.tethys.cool

+33 (0) 6 23 14 97 29
info@tethys.cool