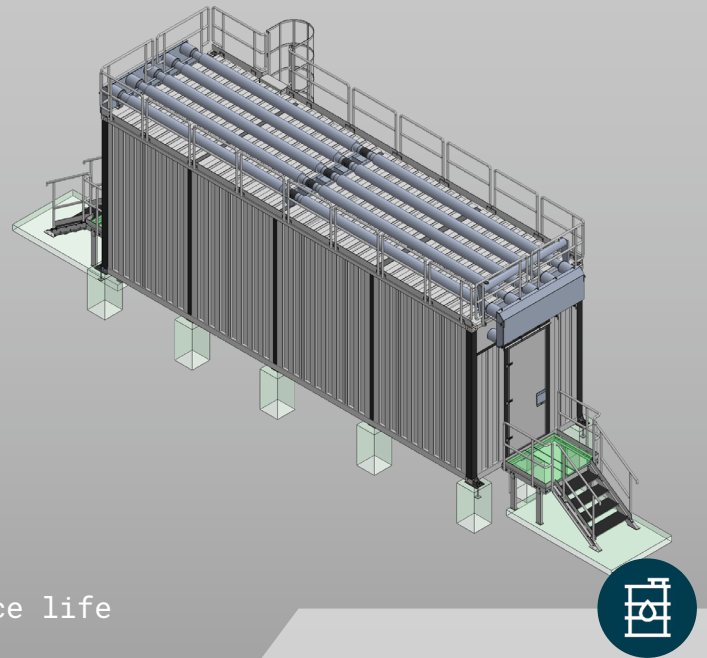




PASSIVE COOLING • SHELTERS

EUDOSIA SISTEMI S.R.L.

PCM passive shelters



MAX AMBIENT • PASSIVE

+55 °C

No HVAC • no water tanks • >20-yr service life

Fully passive shelters that hold internal temperature without HVAC — PCM cooling, no active units, no water tanks, engineered for remote and desert sites with a service life beyond 20 years.

* PRODUCT OVERVIEW

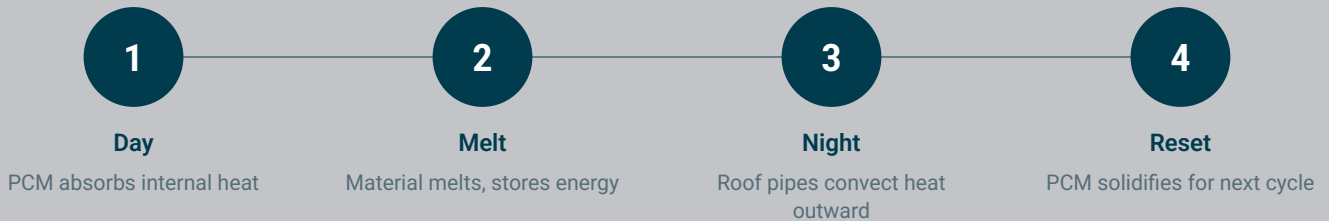
PCM passive shelters keep internal temperatures under control in extreme climates by harnessing a Phase Change Material. The PCM absorbs heat during the day and releases it at night through a natural thermal cycle, with no active cooling units. This keeps operating conditions stable and protects installed equipment while minimising maintenance and the risk of faults or leaks.

Fully prefabricated, monolithic and delivered plug-and-play, the shelters are ideal for remote, desert installations.

PCM Passive Shelters

* HOW IT WORKS

PCM shelters cool passively using a Phase Change Material. Through the hot day the PCM absorbs internal heat as it melts; at night, as the outside cools, roof pipes drive a natural convective cycle that carries the stored heat outward and the PCM solidifies – no active cooling, no moving parts. Design assumes a 50 °C mean day and 25 °C night.



* MAIN COMPONENTS

- | | |
|---|---|
| 01 PCM Modules
Profiles filled with phase-change material, replacing water tanks. | 02 Metal Structure
Custom-engineered structure according to project requirements. |
| 03 Roof Convective Pipes
Release the day's absorbed heat during the night. | 04 Sealed Monolithic Body
One-piece, leak-proof around the electrical equipment. |
| 05 Integrated Electrical
Distribution board, cable trays and Ex-rated battery room. | |

* KEY FEATURES

- | | |
|--|---|
| ■ No water tank inside – no internal leak risk | ■ No maintenance for the PCM material |
| ■ No corrosion, compact overall dimensions | ■ High heat-absorbing capacity, lower temperature reachable |
| ■ One-piece build, long life cycle (>20 years) | ■ Fully testable before delivery |

PCM Passive Shelters

* CONFIGURATION

Fully prefabricated

Complete with wiring, panels and equipment, tested before shipment.

Monolithic one-piece

Single-piece supply, with no on-site assembly of modules.

Plug & play

Delivered ready to connect, minimising field commissioning risk.

Modular enlargement

Designed for easy modular extension as the site grows.

* APPLICATIONS

Temperature control for equipment in extreme climates.

Oil & Gas

Gas pipelines

Remote sites

Desert installations

Equipment shelters

* WHY PCM

- No HVAC to power, service or fail

- No leaks and no internal corrosion

- Lower maintenance, faster field commissioning

- One-piece transport, reduced field work

- Design validated by 3D and seismic analysis

- In-house thermal test (day/night, 4 days) + FAT

PCM Passive Shelters

* SPECIFICATIONS

Dimensions (L×W×H)

Custom engineered per project requirements

Cooling

Passive PCM · no active units (no HVAC)

Max ambient

+50 / +55 °C

Service life

> 20 years

* MATERIALS

Carbon Steel

Stainless Steel (INOX)

Aluminium

* INSTALLATION

Desert

Remote sites

Unmanned sites

* ENVIRONMENTAL AND OPERATING CONDITIONS

- **Extreme climates:** Engineered for ambient temperatures up to +50 / +55 °C and high solar irradiation, with stable operation under large daily temperature swings.
- **Passive operation:** Natural day/night thermal cycle with no active cooling; stable performance even without maintenance, suited to remote unmanned sites.

* SAFETY AND PROTECTION

- Passive system with no active cooling units (no conventional HVAC).
- No tanks — internal leak risk eliminated.
- High operational reliability of the passive system.
- Sealed against dust, sand and external agents.
- High mechanical strength (impact, handling).
- Service life beyond 20 years.

* TESTING AND QUALITY CONTROL

Thermal test climatic chamber, day/night up to 4 days	Rain test up to 150 mm/h	PCM system functional test	Thermal dissipation test	Extreme conditions performance check
Final Acceptance Test (FAT)	Dimensional control	Painting & coating test	Electrical continuity, rigidity, earthing, insulation	Functional equipment test
Load / drop test	Pressure test	Leak test	Weld inspection PT · MT · UT	Thermal -35 °C / +70 °C

* CERTIFICATIONS

ISO 9001:2015	UNI EN ISO 19443	CSA W47.1	A660 CANADIAN STD
ISO 3834-2:2021	EN 13084-7:2012	ISO 45001:2018	UNI EN 1090
U-STAMP ASME			