SUSTAINABLE SOLUTIONS FOR

SAFETY SHOWERS AND INSTRUMENTS

SMITH APPLIED SOLUTIONS

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Dave Smith
President

"As a USA-based start-up, we at Smith Applied understand the unique challenges posed by climate change. Our journey began with the simple yet profound idea of providing an eco-friendly solution to cool the safety tank showers without electricity, especially in challenging environments like the Middle East's hot climate. We draw inspiration from nature and apply ingenious engineering to deliver this greener alternatives. Our team actively seeks ways to reduce our carbon footprint and minimize environmental impact in the design and development of our solutions."

Innovation at the Core

We invest extensively in research, experimentation, and engineering to provide our client a better solution.

Sustainability Matters

We believe in environmentally responsible solutions that make a positive impact.

Quality You Can Trust

Quality isn't just a checkbox; it's a cornerstone of our brand and a reflection of our dedication to our customers. We assemble, inspect and test our product before it leaves our facility.

Passive Cooled Safety Tank Shower

Zero Energy Cooler (ZEC)

FastCool™ Passive Cooling

ZEC series emergency tank showers are equipped with our patented FastCool™ passive cooling technology to provide green and maintenance-free cooling to keep the water temperature within the limits specified by ANSI Z358.1. Our passive cooling system does not require any electrical power and peripherals. Speed of water-cooling matches with that of an electric chiller leading to a very short commissioning time. This helps in saving energy for your plant while keeping your employees safe. The solution is highly economical as compared to the chiller solutions.

Maintenance-free and robust

Green FastCool™ systems are also maintenance-free since they have no moving components.

Quick to install

Plug-and-play type systems are shipped ready to install and require only plumbing connections. This ensures that your project is completed within a short time. Compared to this, traditional chiller systems need a large insulated pipe network, and electrical installation.

We believe in

ZERO

Zero
Power Use

Completely green. Does not require any power to operate.

Zero
Maintenance

No moving parts and robust design makes it maintenance free.

Zero
Operation Cost

Unlike chillers, this standalone system does not require any operator intervention

Electric chillers require energy to offset the heat gain through your plant's large piping network. However, cooling is free, and with our green FastCool™ system. With the help of this technology, you can reduce the carbon footprint of your plant and maintain a safe workplace for your employees. Also, the system has no moving parts and hence is truly maintenance-free. The self-cleaning design of the external heat exchanger fins facilitates the deflection of sand and dirt particles.

Working Principle

FastCool™ system utilizes the diurnal temperature difference to cool the water in the tank. Although daytime temperature in the hot climates may reach as high as 55C, the nighttime temperature is usually between 28-34C. The safe water temperature in the shower is anything below 38C. Thus, an efficient cooling systemis required to keep the water within this limit.

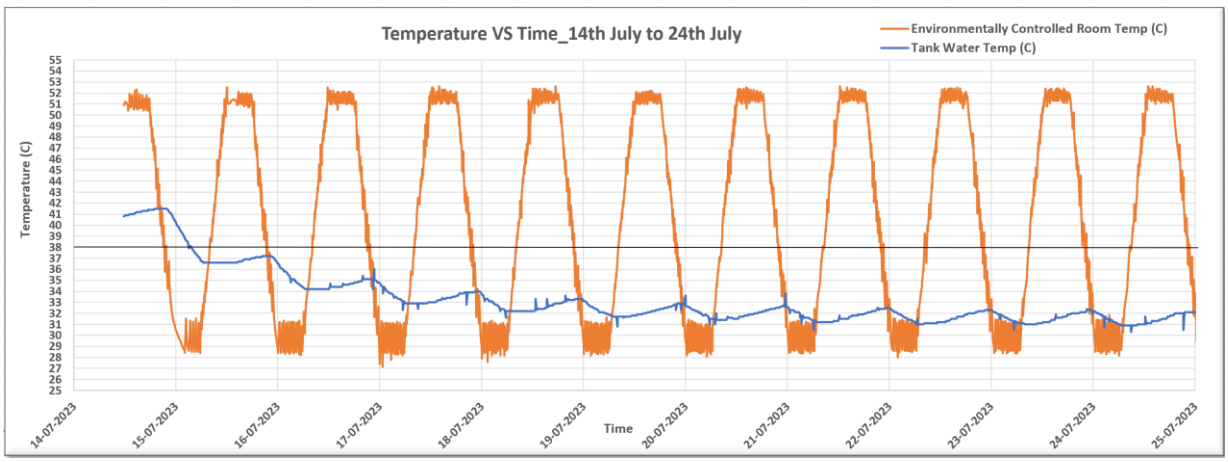
Working Principle and System Details

FastCool™ system consists of a well- insulated tank to store the water. An internal heat exchanger located inside the water is connected to an external heat exchanger using a diode system. This connection only allows the heat to flow from the internal heat exchanger to the external heat exchanger and not the vice versa. As soon as the ambient temperature drops below the tank water temperature, cooling process starts automatically. The internal tank absorbs the heat from water and expels it to the ambient via the external heat exchanger. When the ambient temperature rises above the water temperature during the daytime, the heat transfer stops due to diode nature of the system. Thermal insulation ensures that heat gain through the tank walls is negligible. Thus, the system can work in the highest recorded temperature environments.

Does It Work?

ZEC units have undergone rigorous testing and have been successfully deployed for ADNOC and ENOC facility. They have consistently met the ANSI Z358.1 temperature requirement within a few hours of commissioning in hot summer conditions. Additionally, the ZEC unit has undergone performance testing by the third-party agency for more than a 10 days.

Testing Body: TUV NORD
Duration: 14th to 24th July, 2023
Test Result: Water temperature in the tank was found to settle between 31 °C and 32.5 °C.



Unbeatable Economics

No electric installation cost

Lifetime electricity free operation

Maintenance free

No extra cost for hazardous areas

ZEC-B800

- Integrated passive cooling
- 800-liter tank capacity
- Made from corrosion resistant materials

ZEC-A1500

- Integrated passive cooling
- 1500-liter tank capacity
- Made from corrosion resistant materials

ZEC-1500

- Integrated passive cooling
- 1500-liter tank capacity
- Suitable for indoor and outdoor area
- Made from corrosion resistant materials

Passive Cooled Mobile Safety Shower

Product Information

Introducing the Passive Cooled Mobile Safety Shower by Smith Applied Solutions. In hazardous work environments where safety is paramount, having access to rapid and reliable emergency decontamination solutions is crucial. Smith Applied Solutions proudly presents the innovative Passive Cooled Mobile Safety Shower, designed to provide immediate and effective response to chemical and hazardous material exposure incidents.

Key features:

Passive Cooling Technology: Unlike traditional safety showers, our mobile unit utilizes state-of-the-art passive cooling technology. There's no need for external power sources.

Ready to Use Anytime: Tank water temperature is maintained within the limits specified by ANSI Z358.1 at all times. This allows for its safe placement in proximity to the work area, even during scorching summer conditions.

Built for Mobility:
With its compact and sturdy construction, this safety shower can be effortlessly moved to various locations within your facility.

Enhanced Safety Features:
Our unit can be customized to include additional safety features such as scald protection valves, stainless steel foot pedal actuators, in-line strainers, and drench hoses.

Hybrid Cooled Safety Tank Shower

Product Information

Most Energy Efficient safety Shower

Smith Applied Solutions develops green and energy-efficient emergency shower and eyewash solutions for extreme environments. ATEX-compliant Hybrid Tank Shower Chiller system uses patented technology to provide a cooling system that consumes only 1/5th of the power of conventional chillers.

80% Lower Power Consumption

This hybrid chiller combines passive cooling and active cooling to provide 80% less power than a typical chiller and can run on a 2 Amp power circuit.

Zero Footprint

The compact hybrid chiller does not take up any space on the ground and is attached to the tank directly. This also saves additional civil work that is needed for a ground-based chiller.

Quick Installation

Unlike a typical chiller + shower system, the unit comes with the chiller integrated into the tank eliminating the need for the tank-to-chiller connection.

Highly Reliable

Reliability is improved by eliminating 60% of moving parts.

Tubular Shower and Eyewash

Tubular Shower

- Pedestal-mounted emergency shower with a stainless-steel/ABS Plastic shower head.
- Showerhead with 20 gallons per minute flow regulator.
- Valve: Hands free stainless-steel stay-open ball valve.
- Water Supply: 1-1/4" NPT female threaded stainless steel side or top inlet.
- Piping & Mounting: Schedule 40 stainless steel/GI piping and a floor flange.
- Eyewash with ABS plastic/stainless steel bowl, stainless steel nozzles, fitted with 0.4 GPM flow regulators.

Eyewash/Facewash

- Pedestal-mounted eyewash unit with a stainless- steel bowl, stainless steel eyewash spray heads, an inline strainer.
- Valve:1/2" NPT stainless steel stay-open ball valve with a stainless-steel push handle.
- Water Supply: 1/2" NPT female threaded stainless steel side or top inlet.
- Piping & Mounting: Schedule 40 stainless steel/GI piping and a floor flange.

Smith applied tubular shower and eyewash design are ANSIZ358.1 2014 complied and delivers consistent water spray for effective decontamination. Additional features that can be added include a scald protection valve, freeze protection valve, stainless steel foot pedal actuator, in-line strainer, and a drench hose.

Passive Cooled Cabinet

Product Information

PC series passive cabinets are equipped with our patented FastCool™ passive cooling technology to provide electricity-free and maintenance-free cabinet cooling. The cabinets are made with corrosion-resistant GRP materials insulated with PUF. The Cooling system for each cabinet is designed to keep your equipment cool even during the hottest summer. This lower temperature will help to increase the life of your equipment without the need of an electric cooling system. It's the dependable, eco-friendly, and cost-effective choice for safeguarding your valuable assets.

Robust and Durable

The key advantage of passive-cooled insulated GRP cabinets is their ability to provide thermal protection without relying on active cooling systems, thus the elimination of power consumption cost. We use high-quality composite materials to build our GRP cabinets to achieve high strength and long-term durability. All of our cabinets use gel coats that are extremely resistant to UV, acids and other harsh environments.

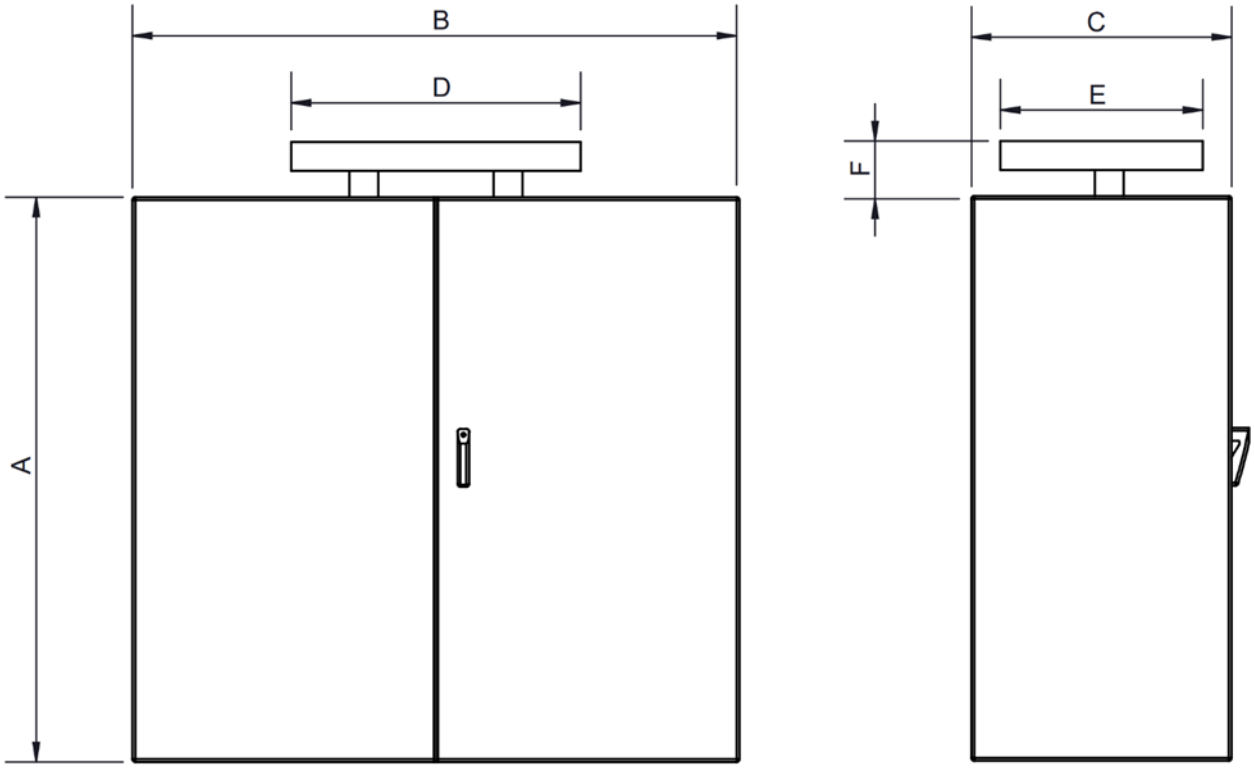
Applications

The application of a passive-cooled insulated GRP cabinet is versatile, offering effective solutions for a range of industries and purposes. It can be used for keeping:

- **Emergency Breathing Devices (EEBD)**
- **Electronic Instruments**
- **Industrial Control Systems**
- **Enclosures**
- **Battery Rooms**

Features

- Cabinet inside air temperature shall be maintained close to the outside nighttime temperature.
- Walls, roof, floor and doors are double wall GRP with 80 mm PU foam sandwiched in between.
- Cabinets are UV resistant, weatherproof and IP rated.
- Custom dimensions can be provided upon request.
- Canopy (optional).
- Color (optional).



Cabinet Model	Height (A)	Width (B)	Depth (C)	HX Width (D)	HX Depth (E)	F
PC-ML50	1600	1000	800	800	600	300
PC-ML100	1800	1000	800	800	600	300
PC-XL50	2000	1200	1000	1000	800	300
PC-XL100	2200	1200	1000	1000	800	300

- All dimensions are in mm

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