

Japan's first domestically-produced ventilation system for underground shelters that meets the world's highest level of disaster threat*

AT Barrier

*All disasters refer to the CBRNE disaster

ProtectArts Co., Ltd. (Yabushita Group
Headquarters: Sapporo, Hokkaido;
Representative Director: Masateru Oguma) is
pleased to announce Japan's first world-class
ventilation system, the "CBRNE-compliant
Ventilation System AT Barrier for Underground
Shelters," with technical cooperation from the
Yamauchi-Asakura Laboratory of
Materials-Creation Nanotectonics Engineering
at Nagoya University.



"Domestic production of ventilation systems for shelters" is a breakthrough in the current situation of shelter popularization



Sample image

In recent years, risks that threaten the lives of Japanese people are increasing. It has been pointed out that there is a possibility of the successive occurrence of huge natural disasters such as earthquakes, typhoons, and eruptions in the Nankai Trough, and that the security environment in East Asia is becoming more tense. For this reason, there is a strong need for shelters that will help people evacuate and increase their chances of survival even if they are placed under severe conditions. The spread rate of shelters has reached almost 100% in Switzerland, where the entire population is able to evacuate to shelters. On the other hand, Japan has made little progress in establishing shelters and is considered one of the most lagging countries. One of the structural factors that has slowed down the spread rate is the reliance on overseas manufacturing for equipment such as ventilation systems. In recent years, the global demand for shelter equipment has been increasing, and considering the risk that the stable supply of shelter equipment may become hindered, domestic production is urgently needed.

The Yabushita Group participates as a member of the "Working Group on the Study of the Performance and Specifications Required for Underground Shelters in Preparation for Emergencies in Japan, a Disaster-Prone Country," organized by the Resilience Japan Promotion Council, which promotes the underlying National Resilience Plan. We are also involved in activities to promote the spread of shelters. As part of these activities, there is a high demand for domestic production of ventilation systems for shelters. As experts in the field of ventilation, we are committed to contributing to the security of Japan, placing the safety and security of the people as our top priority.

A world-class ventilation system completed with the technical cooperation of Nagoya University

In collaboration with Professor Yusuke Yamauchi, the first "Distinguished Professor" at Nagoya University, and the Yamauchi/Asakura Lab., Graduate School of Engineering, Nagoya University, we have developed a highly efficient multi-layer filtering system that utilizes superior porous carbon analysis technology. And now, we are the first company in Japan to launch the long-awaited domestic ventilation system for underground shelters on the market. This technology effectively removes airborne particles, bacteria, viruses and harmful gases, providing a safe space under all conditions. We believe that this new product will be an important step in overcoming and improving the current situation in Japan, where shelters are lagging behind.



Graduate School of Engineering, Nagoya University
Professor Yusuke Yamauchi Associate Professor Yusuke Asakura

Protect us from all threats

The Ventilation System AT Barrier for Underground Shelters designed to protect against CBRNE disasters is an optimal ventilation system for underground shelters in Japan.

Its performance is the highest level in the world, providing a safe environment even in extreme conditions. CBRNE is an acronym for disasters that are threats to us.

What is CBRNE?



Chemical

Contains toxic chemicals. Examples include nerve gases, such as sarin and mustard gas, and skin-burning chemicals.



Radiological

Materials that emit radiation. Examples include radioactive sources, radioactive waste, and radiation from nuclear accidents.



Explosive

Explosions caused by explosives, etc. It is a phenomenon with destructive effects along with heat, light, sound, etc., as a result of sudden generation or release of pressure.



Biological

Infectious diseases caused by pathogens and microorganisms. An example is an infectious disease spread by pathogens such as anthrax.*



Nuclear

Nuclear material. Examples include nuclear explosions and radiation exposure of nuclear materials.

*Anthrax is a dangerous pathogen that causes injuries to the skin, respiratory tract, and digestive organs. If treatment is delayed, it increases to a fatality rate of over 90%. The bacterium is considered easy to use in bioterrorism, and it has been revealed that the former Soviet Union was conducting research on anthrax as a biological weapon.

Product outline

Multi-layer filtering system

Several different filters are combined in a multi-layer structure to efficiently remove harmful substances such as airborne particulates, radioactive substances, bacteria and viruses, harmful gases and volatile organic compounds (VOCs).

Automatic pressure management

Pressurizes the internal space to prevent external contaminated air from entering.

Power, battery, and various manual driving functions

It is possible to operate with various batteries in case of power supply interruption in an emergency.

It also has a manual operation mechanism with a hand-operated handle to maintain the ventilation system in the event of a complete power outage. This keeps the environment in the shelter safe and comfortable under all conditions.

For anyone in need

We respond to a wide range of needs from companies, local governments, national governments, and other public organizations, as well as individuals.

Explosion proof valve

It is equipped with an explosion proof valve designed to respond quickly to pressure fluctuations in the event of an explosion. This helps to properly regulate the pressure inside the shelter and protect the system from explosive shocks.

Product line-up

Three different airflow models are available to suit your needs. Choose from 150 m³/h (for 8 people), 300 m³/h (for 16 people), and 450 m³/h (for 24 people).

List Price (planned)

Model name: ATB-150 150 m³/h 3,150,000 yen (excl. Tax) -
Model name: ATB-300 m³/h 5,000,000 yen (excl. Tax) -
Model name: ATB-450 m³/h 6,800,000 yen (excl. Tax)

Start of shipment (planned)

April 2025



About Yabushita Group

Yabushita, which celebrates its 60th anniversary, has the top share of air conditioning and refrigeration components. It also designs, manufactures, and sells solar panels and lighting components. With more than 20 years of experience in the facility engineering business, and with the latest design and analysis technology, we continue to contribute to the benefit of our customers.

As a company that pursues safety and technological innovation by cooperating with 15 companies of the Yabushita Group that are evolving from various angles, centered on Yabushita, we provide products that make full use of cutting-edge technology, and our mission is to protect the safety and health of everyone. This product is manufactured by ProtectArts Co., Ltd. and is handled by Yabushita Co., Ltd. as the general distributor.

Contact us

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For more information about the new CBRNE-compliant Ventilation System AT Barrier for Underground Shelters, please contact the above contact information.