

CBRN SYSTEMS
Technical Datasheet – Revision 19.03.2025



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NERO INDUSTRY DEFENCE COMPANY

CBRN FILTRATION & PROTECTION SYSTEM

The greatest obstacle before the worldwide widespread use of the system developed for eliminating CBRN attacks which is vital nowadays, is the fact that billions of dollars is spent for storage of filters and sensors which do not have long retention periods but are compulsory to be used in the system. For CBRN preparation filters and sensors are purchased, the products purchased need to be maintained, but even the carbon filters are ready for instant use, their lifetime do not exceed 6 months. Thus, it becomes inevitable to keep buying filters. As they are not ready for use at the time of application, you need to establish them on a vehicle, building or shelter, they are not suitable to be carried. When you will use them, for example 10 years later, you can use the filters if you have maintained filters or system correctly.

As NERO INDUSTRY, we have developed portable, changeable, hermetic filter system with pyrotechnic infrastructure. With this technology, the filters can be activated in a time less than 1 second in a setting ready for protection all the time thanks to pyrotechnic valves. Besides, filter, blower, overfrasher, high pressure valve and all other equipment of the filter in the system are demountable. Filter system can be fixed in a room, shelter, on an ambulance, fire truck, etc. if you want, in other words it can be fixed on any vehicle going for operation in that area.

While going for war or combat, you need to take ammunition suitable for the circumstances, it is necessary to get suitable ammunition for Land, Air, Marine environment, but chemical attack possibility is really high in Turkey, you can assemble this system anywhere thanks to the technology developed by our company. You can place up to 50 pieces to each province according to the need of the province in 81 provinces. In case of an intensive situation, for examples if a military drill will be conducted at Syria border, you can assemble 1000-pieces of systems by reinforcing the area from other areas. The system is made ready by assembling it to military vehicles, fire trucks and ambulances.

When system is assembled on the vehicle, electrical connection is made and green light is on, the system starts protection. There are some specific sensors on the system for early detection, these measure instant high-pressure outbreak outside, that is; the system is activated automatically if the chemical or radioactive detection is above the expected level when a bomb falls near the vehicle or in case of a great pressure change due to an explosion in a chemical facility, etc. That is very important for activation of the system independent from the user.

Because; according to the experience we have gained from CBRN attacks, even though the personnel to use the system are trained, the system may not operate due to the fact that it is no known how to use the system, it is automatically activated without using or they have forgot to change the filters. Thanks to the system we have developed, in order to solve the problem of changing the filter in time, the filters are completely closed by hermetic valves and their inlets and outlets are sealed with pyrotechnic valves.

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Pyrotechnic valves are only blown and activated when the system is activated automatically or manually and activate CBRN system. Then the system passes the air throughout the blower and creates high-pressure inside and starts cleaning the air. CBRN filter can be changed completely. Normal filter needs to be changed 6 months, 1 month after it is opened or after 1 use, but filters are not changed according to change period. As you do not have to change the filters all the time thanks to the filter developed with our technology, it decreases the costs and increases protection reliability level 98%.

Pyrotechnic valves on the system enable automatic or manual activation of CBRN filters. Normally, in order to change 1 CBRN filter, you need to go outside the building, go to CBRN filter room, open filter packages, slot it to its place, make sure the system is connected correctly and then operate the system. The cost for all the systems being operative in CBRN protection areas is billions of dollars, but this amount can be decreased by 0.001 when it is used with hermetic pyrotechnic valves, there will be no cost of change or conversion. The lifetime of hermetic closed filters are above 15 years which means the system can wait ready for use for 15 years after it is assembled.

For the system to be put into use on vehicle, CBRN filters are assembled outside of the buildings or vehicles due to contamination threat. After they are assembled outside of the vehicle, in case of a possible threat using personnel needs to should get out of the vehicle, walk through contaminated ground, open CBRN lid, find the filter, open its package and slot it to its place. Thus, the user is exposed to attack instead of being protected from CBRN attack. For this reason, high-cost system does not serve its purpose due to its wrong use while it should be integrated inside of the vehicles.

Thanks to RAPID CBRN developed by NERO INDUSTRY, filters can remain in the system without being deformed throughout their lifetime. They only need to be opened for changing. For activating the system, it is not needed to switch on/off, get outside the vehicle, enter into contaminated area or change a contaminated filter inside the vehicle. Being the best practice; the contaminated filter will be dismantled from outside, besides the filter will be able to get activated by itself as it is hermetic and pyrotechnic filter.

When system is activated, pyrotechnic valves are opened and pump fresh air into the area by fans in a time less than 1 second and start cleaning the air. This is the quickest cleaning method in the market at present. The fact that system is relocatable on vehicles or buildings enables its transportation to possible threat areas. As filters are integrated into the system, any extra storage area is not needed. As filters are designed to be resistant against environmental conditions and shock vibration, they can operate continuously with the system.

Having these specification, CBRN Filtration Systems produced by NERO INDUSTRY have got ahead of all conventional systems in the World. The process of taking out patent for these systems is in progress.

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CBRN SYSTEM UNITS

UNIT NAME	DESCRIPTION
AIR MEASURING DEVICE	Biological Detection System measures particles with a diameter between 0.3 and 10 µm by using laser-based particle sensor. An LCD display ensures settled visualization of PM1, PM2.5, PM4 and PM10 values. Detailed analysis of PM readings enables real-time particle size visualization. It measures the light radiated by separate particles carried within a sample airflow by a laser beam. Dimension: 212×235×264 mm Weight: 5 kg
BIOLOGICAL DETECTION SYSTEMS	Biological threat is a particular source of concern as especially most of the biological agents are easy to be produced, carried, and spread. Most of the diseases caused by biological agents are quite contagious and, in the meantime, infected people continue to spread the disease and expand its scope further. As time is required for a biological attack to develop, it can be used as a destructive weapon with its spread. Early warning, detection, and identification of biological weapon attacks are main biological defense components helping to lighten the consequences. Dimension: — Weight: —
CHEMICAL DETECTION SYSTEMS	Optical spectroscopy is a very powerful technic for toxic gas analysis. It enables measurements of light absorption, emission, scattering and rotation, significant structural data and chemical definition of these. Each element of an optical filter series transmits the filtered light to the matching element of a photodetector series. It uses a Fourier transform infrared microscope (FTIR) to record the optical power transmitted from each filter. Dimension: 332×450×645 mm Weight: 12 kg
CASSETTE TYPE CBRN SYSTEM	It can be used in ground control rooms and military vehicles. It can be used in 2 different modes as ventilation and filtration. Number of Protectable Staff: 4–12 staff Shelf Life: 10 years Max. Working Height: 3000 meters
AUTOMATIC DECONTAMINATION SYSTEMS	Decontamination System decontaminates the protected space. It can be open, closed or semi-open. Under 5 seconds enables enough time to run into the protected spaces.