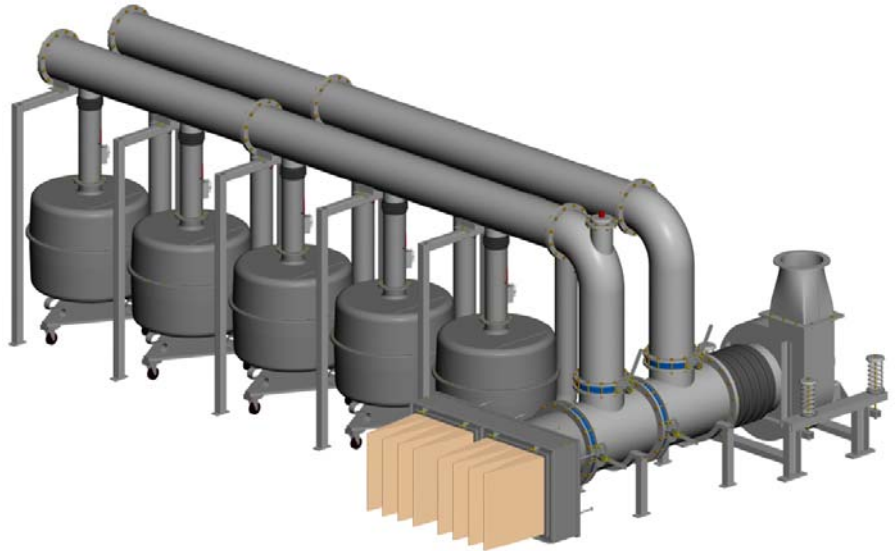


Protective solutions

Applications

The ESL-series NBC-filtration units are used for emergency ventilation in Civil Defence and military shelters. Purpose of the NBC-filtration units is to provide filtration of Nuclear Fallout and Biological and Chemical Warfare agents. ESL-units are available with two different types of filter, ES-600 and ES-1250, as the following models:

- ESL-600 and -1250 (one filter)
- ESL-1200 and -2500 (two filters)
- ESL-1800 and -3750 (three filters)
- ESL-2400 and -5000 (four filters)
- ESL-3000 and -6250 (five filters)



Specification

Manufacturer of ESL-series NBC-filtration units is Temet, Helsinki Finland.

The ESL-series NBC-filtration units comprise the following main components: ES-Series NBC-filters connected to special NBC-ducting made of heavy gage welded tube, shock protected shelter booster blower, gastight closing valves for operational control of the emergency filtration modes, pre-filter for filtration of coarse particles from the intake air and pre-heater for heating the intake air to decrease its relative humidity for extending the service life time of the NBC-filters. The ESL-filtration units have the following capacities:

Type	Filtration air flow m ³ /h	Type	Filtration air flow m ³ /h	Bypass air flow m ³ /h
ESL-600	600	ESL-1250	1250	1800
ESL-1200	1200	ESL-2500	2500	3600
ESL-1800	1800	ESL-3750	3750	5400
ESL-2400	2400	ESL-5000	5000	7200
ESL-3000	3000	ESL- 6250	6250	9000

Static pressure capacity provided by the blower is 550 Pa at the nominal filtration mode air flow rate and 1000 Pa at the bypass mode air flow rate.

ESL-filtration units can also be provided with an optional complete CWA (Chemical Warfare Agent) detection system.

Design Criteria

The ESL-series NBC-filtration units are made in accordance with specific provisions issued by the Finnish Ministry of Interior. The ESL-series filtration units are type tested and approved for use by the Technical Research Centre of Finland / VTT Building Technology, an Independent Testing Authority mandated to perform type inspection for shelter equipment by the Ministry of Interior.

Test and performance data

The filtration units are designed and tested against reflected blast pressure of 1.5 bar and reflected total impulse of 7.5 bar ms measured at the intake air duct.

The ESL-series NBC-filtration units are shock tested with a mechanical shock of the installation base having a maximum acceleration of 20 g and velocity of 1.5 m/s.

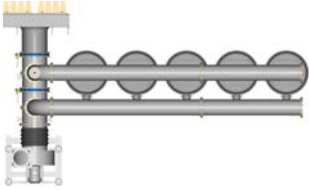
The NBC-filters used in the ESL-series NBC-filtration units are of type Temet ES-600 or ES-1250 each providing air filtration capacity of 600 or 1250 m³/h. The NBC-filter consists of a HEPA filter and an activated carbon filter. The efficiency of the HEPA filter is at least 99.995% for particles of 0.3 µm. The activated carbon used in the ES series NBC-filter complies with the Finnish Civil Defence standards.

Type test report

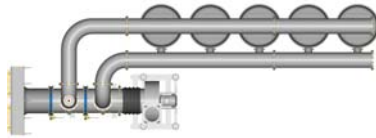
VTT type test report available upon request.

TEMET NBC-FILTRATION UNITS

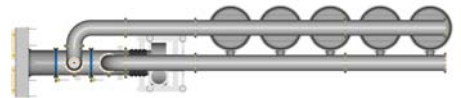
The ESL-series NBC-filtration units are of modular structure with variable layout. This makes possible fitting of the unit in the usually tight machinery room. The standard ESL-system layout can easily be varied by directing or moving filters to different position and location. Below are some typical examples of the unit layout. When given the dimensions of the machinery room and the desired filtration air flow, Temet will select the suitable NBC-filtration unit and design the unit layout to optimize the usage of floor space.



Standard ESL- Unit layout



ESL- Unit with short 90° bend



ESL- Unit with long 90° bend

Standard ESL- NBC-filtration unit includes:

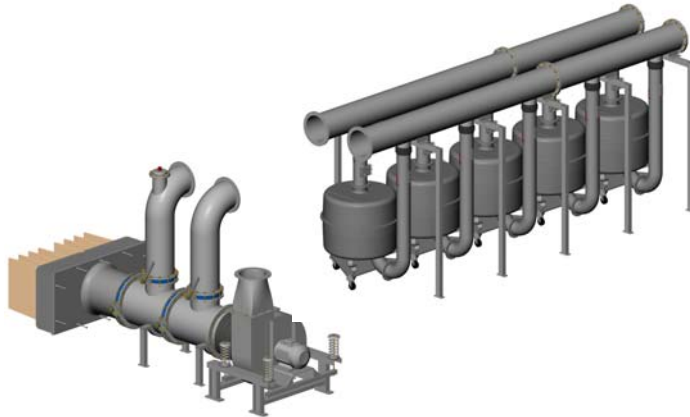
Main ventilation duct c/w with gastight closing valves and intake air pre-heater

1 x Distribution duct set

ES-Series NBC-filters c/w pressure difference meter and air flow meter

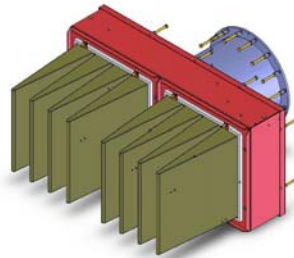
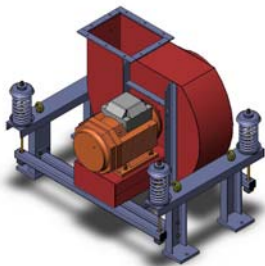
Intake and outlet air ducts for filters c/w flexible duct connectors

Duct supports and installation hardware



1 x Shelter blower unit c/w shock isolated mounting frame

Pre-filter c/w cast-in wall sleeve and installation frame



Design - Production – Installation – Maintenance - Consultation