



GGA-35St and GGA-11St Extinguishing Aerosol Generators

Modern FIREACTION Fire Suppression Technology



FIRE ACTION extinguishing aerosol generators are fixed or hand-held (optional) fire protection devices that can be used for suppressing fires of classes ABCE in enclosed spaces. FIRE ACTION generators are the only devices of this type manufactured in Poland, characterised by fast and simple installation with no need to adapt the protected areas (e.g. by installation of the pressure relief flaps) or use complex systems.

FIREACTION generators are a state-of-the-art fire control solution that is increasingly used as an alternative to sprinkler, CO2, foam, powder and gas systems. Generators are used to protect facilities including: industrial plants, utility/power generation rooms, storage rooms, telephone exchanges, archives, cable shafts, transformer stations, garages, boiler rooms, server rooms and many others.

Extinguishing aerosol – is produced in devices called **extinguishing aerosol generators** through combustion of special AOS pellets (solid) – a mixture of gaseous and solid particles ($0.3\mu\text{m} \div 2\mu\text{m}$) that will remain suspended in the air of the protected area when discharged..

Effectiveness – aerosol is effective in suppressing fires of Group B, C, E and F. In the case of Group A fires the aerosol stops the flame combustion process after reaching the extinguishing concentration, suppresses the fire and lowers the temperature in the room. In the case of fires involving organic solids (Group A) that normally burn producing glowing embers, professional overhaul is required after aerosol concentration in the room is reduced (e.g. by venting the room). In such case the first person entering the room in which the fire suppression process has been completed, should be a person specially trained in fire protection or a fire-fighter.

The main advantages of FIREACTION aerosol generators include:

- long warranty period,
- quick and easy installation with low maintenance costs,
- compliance with fire alarm and automatic fire suppression systems,
- no need for piping, pressure water tanks, additional rooms, pressure relief flaps etc.
- agent causes no damage to protected areas and is easily removable from any surface.

Fire suppression using an aerosol agent involves saturating the space with the appropriate concentration of the agent, resulting in interrupting combustion chain reaction of free radicals in the flame, whereby the unstable molecules of the flame are bound by the active agent particles (alkali metals) contained in the aerosol.

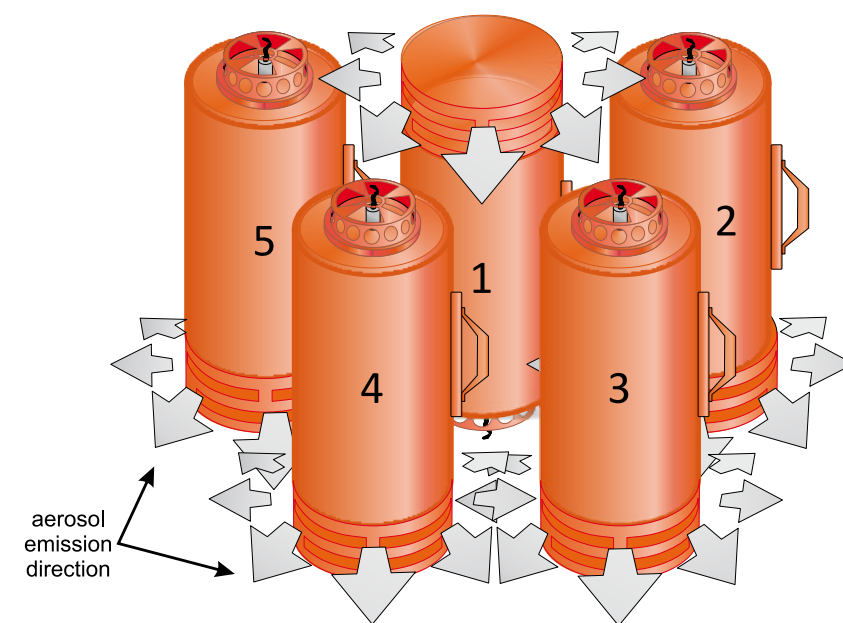
Toxicity and environmental impact – the aerosol is non-toxic (certified by the Polish Institute of Hygiene) and may only cause slight irritation of mucous membranes. This effect can be further decreased or even eliminated by using respirators or fabric or gauze packs. After discharge, the room is only filled with the hygroscopic powder that can be easily cleaned up, while the generator casing is empty and may be scrapped as containing no hazardous substances. After activation, the only risks involve contamination by agent particles settling down on equipment. Aerosol particles settling on horizontal surfaces can easily be removed by vacuum-ing, wiping, cleaning with water or with addition of a detergent.



Installation and activation of generators

Generators are supplied with the wall and ceiling mounting brackets and electrically activated pyrotechnic primers. FIRE ACTION generators are activated by pyrotechnic primers upon application of electric current of 0.3 A - 0.5 A for 0.5 seconds or heat. Electrical primers may be activated by special release devices controlled by fire detection and alarm systems. Groups of generators can be activated simultaneously by fire suppression control devices, e.g. by MZGA type sequential activation modules. Where several FIRE ACTION generators are installed in large rooms, they should be activated almost at the same time to ensure that agent concentration in the room as required to suppress the fire is reached in the shortest possible time. Once activated, FIRE ACTION generators will discharge the agent until empty.

Hand-held fire extinguishing and emergency protection systems – aerosol generators can also be used in mobile or emergency fire control applications. Special supports are required for generators to be used in these applications, with activation by means of individual pyrotechnical primers with thermal initiation or by means of special devices used for activating individual generators or groups of generators.



Example method of simultaneous activation of the GGA generators equipped with thermosensitive primers

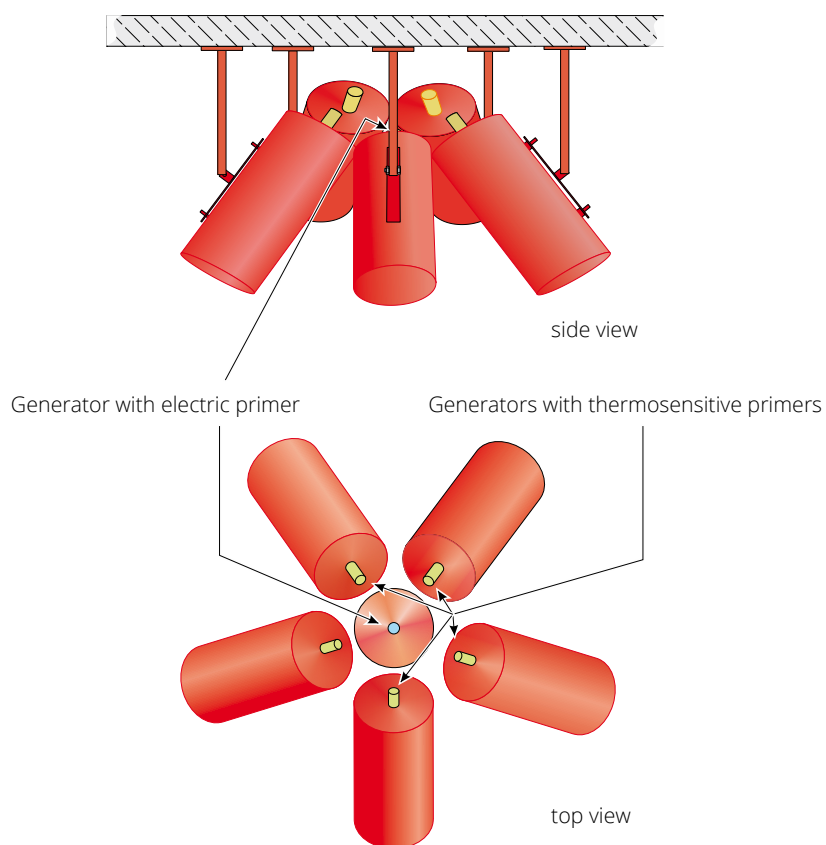
Construction and technical parameters

FIREACTION extinguishing aerosol generators are built as non-pressurized containers in the shape of stainless steel cylinders.

FIRE ACTION GENERATOR – Parameters	unit	GGA11St	GGA35St
diameter	mm	161	191
length	mm	319	410
weight of generator	kg	7,7 ±0,5	14,3±0,5
weight of agent pellets	kg	1,1±5%	3,55±5%
aerosol emission time	s	55÷65	145÷155
maximum protected volume	m ³	20	70
maximum temperature of aerosol at the distance of 1m from the casing	°C	80	80
range of operating temperatures	°C	-45 ÷ +70	-45 ÷ +70
life of generator	years	10	10

Each FIREACTION generator is supplied with a primer – a pyrotechnical device activated with electric impulse of current strength of 0.3 A - 0.5 A and duration time not shorter than 0.5 seconds used to initiate the process of aerosol production.

The delivered set includes, apart from the generator and the primer, a bracket for mounting the generator to the structural elements of the room, consisting of a rack and two, alternatively used, handles, primer casing, injector and a set of screws and bolts.



Example method of activation of the GGA generators set equipped with thermosensitive primers that is initiated by an electrically controlled generator