



“Extinguishing Systems Ltd.”



EPOTOS Group

## Condensed aerosol generator with radial outflow



## USER MANUAL

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## 1. DESIGNATION

1.1. Condensed aerosol generators Doping-1R.100, Doping-2R.200, Doping-2R.400 and Doping-4R.800 with radial outflow (further as «CAG») are designed for extinguishing in conditionally closed rooms fires and ignitions of the following classes:

A2 — solid combustible materials ignitions;

B — volatile flammable and combustible liquids ignitions;

C — gases ignition;

and fires of electrical equipment being under voltage of up to 36 kV.

1.2. CAG can operate in an ambient temperature range from  $-50^{\circ}\text{C}$  to  $+95^{\circ}\text{C}$  (it is permitted to rise repeatedly the ambient temperature up to  $+125^{\circ}\text{C}$  for the duration of not more than 8 hours).

1.3. Predominant fields of application are engine compartments and other spaces of various transport means such as river and sea vessels, railway locomotives, cable vaults, electrical boxes and transformer plants, as well as rooms containing highly inflammable substances including volatile flammable liquids, combustible-lubricating materials and fuel gases, and also storage rooms of valuable materials etc.

1.4. The service life of the CAG is 10 years, reliabilities — 0.95.

1.5. The generators belong to the class of fixed extinguishers with zero ozone depleting potential.

1.6. The generators can be produced in two basic versions: as a general make (for application in stationary objects and on various transport means except for river and sea vessels) and as well as a marine make (exclusively for fire protection of engine rooms and other compartments of various river and sea vessels).

The distinctive kind of such generators is a short stream and relatively low temperature of the effusing aerosol. That gives the possibility to install generators in places straitened by various equipments.

## 9. NOTICE of ACCEPTANCE

This notice certifies that the generators supplied have left EPOTOS Group in full working order.

The Doping generators covered by this notice are listed here:

- Manufacturer's Serial Numbers:

- Goods were inspected and packed on:

- Inspector's stamp and signature

## 6. MAINTENANCE REQUIREMENTS

6.1. The Doping generators do not require special maintenance beyond a regular visual inspection.

6.1.1. Once per a month each generator being in the standby state should be examined for the absence of visual internal abnormalities of package contents and security of attachment, changes in attachment condition, mechanical damages, as well for the absence of disconnection and internal abnormalities of the electrical actuator circuit.

Generators having troubles that can't be easily rectified should be checked by the manufacturer.

**Attention! The electrical circuit should be checked electric current less than 0.2 A.**

## 7. STORAGE and TRANSPORTATION

7.1. The Doping generators should be stored and transported in original packing. These will provide protection from mechanical damage, direct sunlight, moisture and aggressive environments.

7.2. Generators Doping are unpressurised units. They can be transported by any transport at any distance in accordance with general existing rules of cargo transportation. The generators when transported by air are classified as dangerous goods of Class 9.


## 8. WARRANTY

8.1. The manufacturer guarantees the compliance of the generator to the requirements of the Technical Specifications, provided the conditions of transportation, storage and operation are strictly observed by users.

8.2. The specified service life of generators is 10 years if the storage time is not more than 8 years.

8.3. The generator warranty assurance – 2 years from the acceptance date.

## 2. SPECIFICATION

Description	Doping-1R.100	Doping -2R.200	Doping -2R.400	Doping -4R.800
1. Mass of aerosol forming compound (AFC), kg	0.1 ±0.005	0.2 ±0.01	0.4 ±0.02	0.8 ±0.04
2. Extinguishing application density, g/m <sup>3</sup> ClassB/ClassA (GOST R 53284)	60/45	60/45	60/45	60/45
3. Maximum protected volume, Class B, m <sup>3</sup>	1.6	3.3	6.6	13.3
4. Delay of aerosol discharge, s (not exceed)	3	3	3	3
5. Discharge time, s (not exceed)	8	10	10	14
6. Overall dimensions, mm (not exceed):				
length without electrical ignition device	246	182	287	292
length with electrical ignition device	283	219	324	329
diameter	40	76	76	105
7. Total mass of a generator without an electrical igniter and brackets, kg Mass of a standard electrical actuator, kg – 0,057	0.85 ±0.03	1.7 ±0.1	3.2 ±0.2	5.5 ±0.3
8. Distance (m) from the aerosol generator discharge outlet to the point where the temperatures not exceed:				
200°C	-	-	0.0	0.2
75°C	0.25	0.3	0.35	0.4
9. Specification of electrical ignition device:				
current of guarantee actuation, A (not less)	0.7	0.7	0.7	0.7
resistance of fuse head, Ohm	1.5±0.3	1.5±0.3	1.5±0.3	1.5±0.3
safe test current, A (not exceed)	0.2	0.2	0.2	0.2
10. Connections in Doping electrical connector				

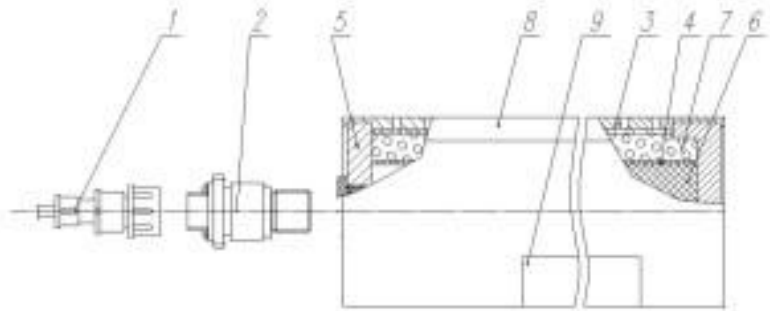
NOTE: The voltage at the output connectors of the electrical ignition device should

be in the range of  $1.5 \pm 30.0$  V.

### 3. SUPPLIED PARTS

3.1. The delivery set (fig.1) includes:

- CAG – 1 pc,
- Electric actuator – 1 pc,
- Cable plug – 1 pc (due to a buyer's desire),
- User manual (It is permitted to attach one manual for a generators' lot of not more than 10 pc).



- |                       |                                       |                       |
|-----------------------|---------------------------------------|-----------------------|
| 1 – Cable plug        | 4 – Inner container                   | 7 – Coolant           |
| 2 – Electric actuator | 5 – Back cover                        | 8 – Discharge outlets |
| 3 – Casing            | 6 – Aerosol-forming compound (charge) | 9 – Label             |

Fig.1. Condensed aerosol generator with radial outflow

### 4. DESIGN STRUCTURE, PRINCIPLE OF OPERATION AND INSTALLATION DETAILS

4.1. Design structure is shown at the fig.1.

4.1.1. The generator consists of a cylindrical steel casing (3) with longitudinal discharge outlets (8). The charge of the aerosol-forming compound (6) is disposed inside the casing in the inner perforated container (4), supported with a spring. The electric actuator (2) should be screwed in the fitment bore of the back cover (5) of the casing. The coolant (7) is placed between the inner container and discharge outlets. The outlets outside the casing are taped with a sticker "Aerosol discharge outlets".

4.2. Principle of operation.

4.2.1. The generator is activated after receiving an appropriate electrical signal on the electrical actuation device.

4.2.2. The electrical ignition device after actuating initiates aerosol-forming compound charge burning.

4.2.3. During compound charge burning the generated gas-dispersed

combustion products flow through the coolant and further through the annular slots of the generator casing into the protected volume and extinguish a fire.

4.3. Installation details.

4.3.1. The generators can be mounted on the walls, floors or on the ceilings of protected objects with the help of the brackets.

4.3.2. Before installing take the generator out of the packing and inspect it to the effect that there are no damages on the body (casing 3) and on the electric actuator (2). Check the integrity of the actuator electric circuit by a milliampere-meter (**safe test current should not exceed 0.2A**), extract the choke from the fitment bore in the back cover of the generator and screw in the actuator (2).

4.3.3. Select the place for the generator installation ensuring the absence of any obstacles that might impede aerosol outflow at a distance of about 0.1 m. Fix the generator with the brackets on the selected place.

4.3.4. Solder the cable of the starting circuit to the mate. Connect it with the cable plug of the electric actuator.

### 5. HEALTH AND SAFETY REQUIREMENTS

5.1. The generators are limited for use in the places of wide people presence (in the places of mass cultural actions or mass visiting).

5.2. During maintenance of generators should be observed fire safety precautions like at use of combustion agents.

5.3. The personnel who may be expected to operate generators should read this manual and instructive notices printed on the casing (label) and follow their requirements.

5.4. After actuation of the generator any person should not be in the zone of the aerosol gas flow with the temperature higher than 75 °C.

5.5. People could be in the space filled with fire extinguishing aerosol during 60 sec. and more only if they wear personal protection equipment (respiratory apparatus).

5.6. Particles of fire extinguishing aerosol that accumulated on the open surfaces after the generator operation are taken away with a vacuum cleaner, brush, wet cleaning rag or washed off by water. During cleaning personal protection equipment should be used (respirator or gauze bandage). In case of eyes contact rinse eyes in plenty of water.

5.7. It is not allowed to:

- place generators near heating devices (in the zone with the temperature of higher than 60 °C);
- connect generators to an electrical supply prior their standard installation on an object;
- make any work with a generator connected to a trigger circuit;
- conduct welding work, smocking and use open flame on the distance nearer than 15 meters from a generator.