EUROPEAN JOURNAL OF LIFE SAFETY AND STABILITY (EJLSS)
ISSN2660-9630
www.ejlss.indexedresearch.org Volume 23, November-2022 ||

Automatic Fire Extinguishing Installations

Sharapova Madinabonu Baxtiyor qizi,

student of Tashkent State Technical University

E-mail: masharapova2020@mail.ru

Kushnazarov Pulat Islamovich

Tashkent State Technical University,

E-mail: polat.komol@mail.ru

Abstract: *Automatic fire extinguishing installations are necessary for the rapid impact of detected fires and the elimination of fire. Installations can be compared with a fire brigade, constantly operating in fire stations. Automatic fire extinguishing systems can be installed in almost any room. The most optimal locations for such installations are large closed parking lots, computer control units, production facilities, if necessary, it is possible during the ignition of the production process, archives of documents, etc.*

Keywords: *Automatic fire extinguishing systems, fire elimination, powder installations, gas installations, foam installations, aerosol installations, water installations, drencher, sprinkler.*

Date of Submission: 03-11-2022 ***Date of Acceptance: 22-11-2022***

Introduction

Automatic fire extinguishing systems are systems that absolutely control and eliminate fires in buildings and structures without human intervention.

This type of fire extinguishing systems is considered the most effective and specialized for urgent response to all kinds of signs of fire and their elimination.

Automatic fire extinguishing systems (AUP) are part of the general fire protection system of the building. Their design, installation, commissioning and maintenance are regulated by the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan, dated 20.10.2020 No. 649 On the approval of fire safety rules.

The purpose of use is localization and elimination of fires, preservation of life and material values. The automatic fire extinguishing system consists of tanks or other sources filled with an important amount of extinguishing agent, control and monitoring devices, piping systems and sprayer nozzles. The number of sprayers, the length of the pipeline section, and the requested

number of extinguishing element for each individual incident are determined by careful calculations of specialists [1].

According to the functioning generally recognized measures and provisions of fire safety, mandatory equipment with automatic systems are subject to:

• Data processing centers, server rooms and other premises intended for information processing and storage;

• Parking lots: closed type underground or above ground more than 1 floor in height;

• Buildings made of light-weight metal structures up to two floors with combustible materials as insulation (from 800-1200 m^2);

• Retail premises in the field of combustible and flammable consumer goods;

• Non-industrial buildings over 30 meters in height of categories A, B, C;

• Single-storey buildings of exhibition or museum class of more than 1000 m^2;

Entertainment halls with a capacity of more than 800 people; Other buildings with a high risk of fire [2].

Types of fire extinguishing systems.

According to the extinguishing agent, automatic fire extinguishing systems can be:

Powder installations are used to localize fires of type A, B, C and electrical installations with powder elements such as "Eternis" (Moscow), "Epotos" (Moscow);

Gas systems use gaseous substances such as hladon 23, hladon 125, hladon 218, hladon 227, hladon C 318C, sulfur hexafluoride, carbon dioxide, nitrogen, argon, inergen. It is forbidden to use these installations when extinguishing loose, porous, chemical substances and materials, metal powders and their hydrides, for example, such systems as: "Artsok" (Moscow), "PAS" (Moscow), "Special Automation" (Moscow);

Foam – systems using foamy liquids to extinguish flammable and combustible substances. Such systems include the systems "Aegis PTV" and "Gerda" (Moscow), "Tomzel" (Omsk) and "Pozhneftekhim" (St. Petersburg);

Aerosol installations are used in rooms of type A, B and produce aerosol–type combustion products in the lesion [3, 5].

Water -extinguishing systems based on water or aqueous chemical compositions of the type "Special Automation" (Biysk), "Hephaestus" (St. Petersburg), which, depending on the method of spraying the solution, can Gorenje be:

Drainage systems installed on water pipelines of open-type fire systems with horizontal or vertical orientation of the sprinkler for use on large areas (Fig. 1);

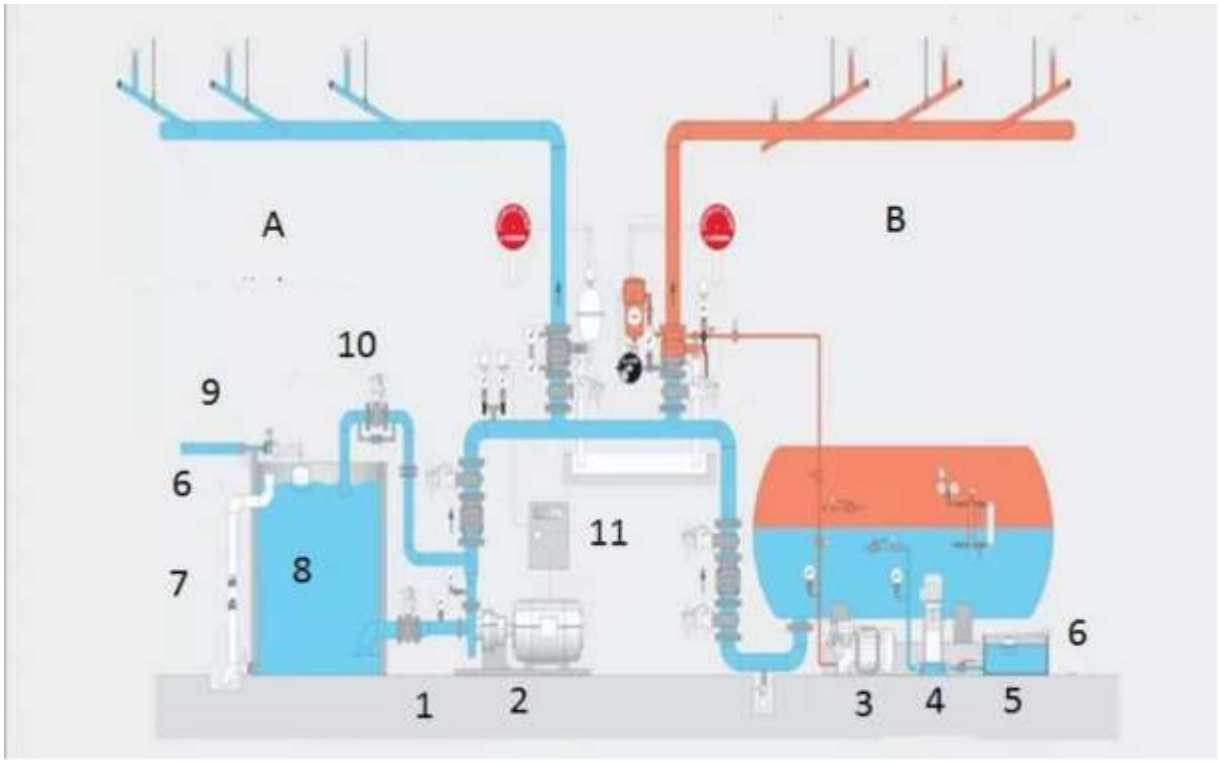

Figure 1 – Diagram of the functioning of an automatic water fire extinguishing system

Sprinkler equipped with thermosensitive liquid flasks under high pressure, which expand and irrigate the environment when the temperature regime changes (Fig. 2).
The device of automatic fire extinguishing systems.
Modern automatic fire extinguishing systems consist of the following elements:
fire detection devices – mechanical or electrical detectors;
system inclusion designs;
ways of transportation and distribution of extinguishing agent: pipeline (for water, foam mixture, powders, aerosols and gases) and nozzles, sprinklers or nozzles;
pumping equipment;
incentive devices;
shut–off valves - valves, valves and valves;
control units; storage tanks of extinguishing agent; dispensers.

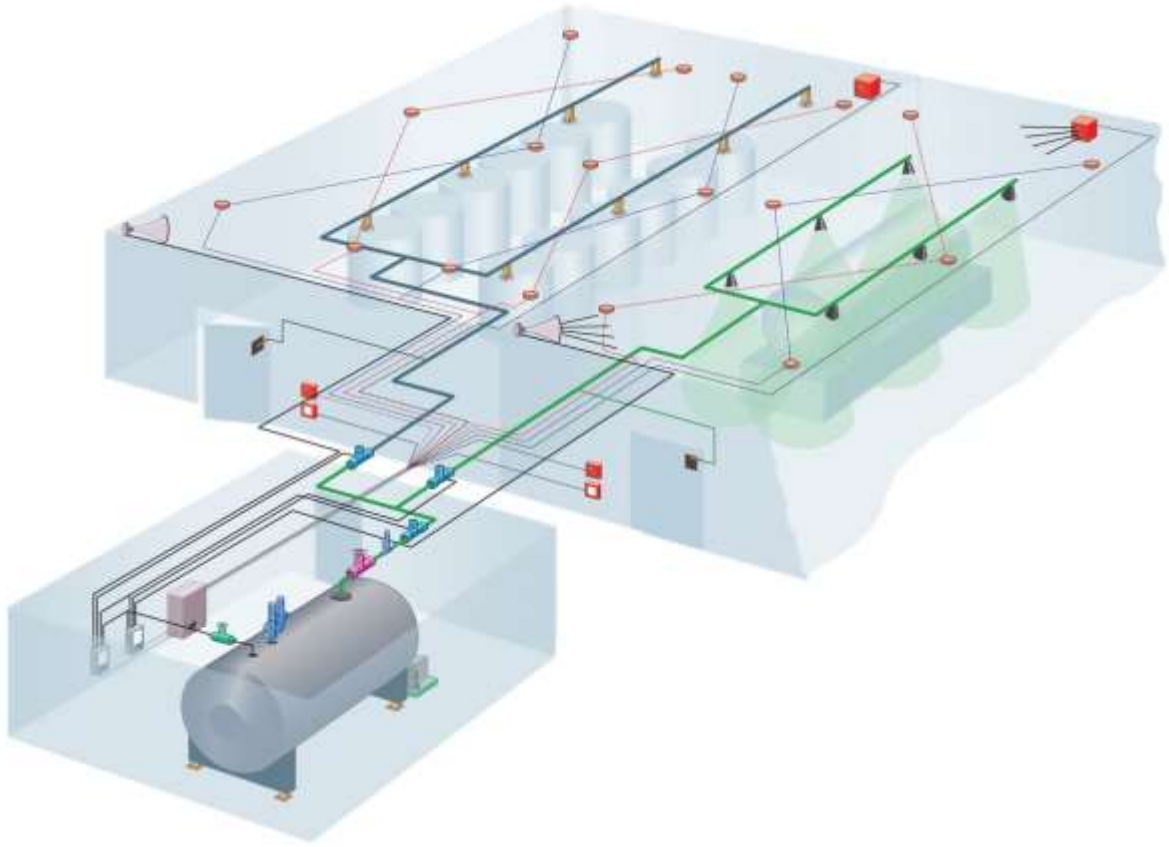

Figure 2 – Operation diagram of the automatic sprinkler system of water fire extinguishing

Advantages and disadvantages of fire extinguishing systems.
However, giving preference to one or another type of automatic installation, their advantages and disadvantages should be taken into account:
water is the safest for humans and effective in working condition, but requires high costs for water and additional units;
gas, does not cause corrosion of equipment, does not harden, resistant to temperature changes, but is most dangerous for living organisms;
powder installations do not harm humans and the surrounding atmosphere, are convenient to use and optimal in price, but limited in shelf life;
aerosol and foam systems are dangerous to the atmosphere and living organisms, limited in shelf life, are not effective for all types of fires [4, 5].
Effectiveness of fire fighting.
Automatic fire extinguishing systems (ASPT) in comparison with alarm systems and manual devices are recognized as the most effective in eliminating fire situations. ASPT allows you to create all the necessary conditions for limiting the operationally and with high efficiency of the fire source, providing a minimum level of risk for fire extinguishers.
The use of automatic fire extinguishing systems at an enterprise or industrial facility allows you to monitor the state of fire safety and extinguish fires.
Thus, the analysis of automated fire extinguishing systems, the requirements of the modern regulatory framework (subject to their implementation) allows us to make a forecast on the

activation of the use of water fire extinguishing systems and the possibility of creating new combined systems that meet the requirements of Technical Regulations.

References:

1. Voronov V.A. Technical security and fire alarm systems / V.A. Voronov, V.A. Tikhonov. - M.: Hot book Telecom, 2010 – 376 p.
2. Analysis of statistics of endogenous fires in coal mines of Russia /Zavirikina A.A.// Ed.: NUST MISIS Moscow. Mining sciences and technologies. – 2014 –No. 1. – pp. 30-36.
3. Astakhov A.S. Mining industry economics: Studies for universities / A.S. Astakhov, A.E. Kamenetsky, Yu.A. Chernegov. – M.: Nedra, 1982 – 210 p.
4. Ражабов Н. Ш. Роль Социального Партнерство В Установлении Нормативов В Сфере Охраны Окружающей Природной Среды (Правовой Аспект) //CENTRAL ASIAN JOURNAL OF THEORETICAL & APPLIED SCIENCES. – 2021. – Т. 2. – №. 8. – С. 45-55.
5. "Evraz" increases the level of industrial safety at the mines of "Yuzhkuzbassugl" / Press release of "Evraz Group" // Ed.: VostEko Mining. - 2009 – No. 3. – p. 100
6. Risks of formation of fires in workings, belt conveyors Stages of a long way / T.V. Galanina // Kemerovo. Miners' solidarity. - 2012 – No. 32 – P.112.
7. Water fire extinguishing system / V.E. Shilova // – Publishing House: "Fire science". Moscow – 2013 – No. 6. – p.345.
8. Ражабов Н. КОНСТИТУЦИОННО-ПРАВОВАЯ ОСНОВА ОБЕСПЕЧЕНИЯ ПРАВА НА ЭКОЛОГИЧЕСКИ ЧИСТУЮ ПРОДУКЦИЮ //Review of law sciences. – 2020. – Т. 3. – №. Спецвыпуск. – С. 179-183.