

Foam Chamber & Rimseal Foam Pourer



We Offer
Creative
Design

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Welcome to Arka Sanat Pishro

Our dreams is build a new generation of high quality design and development with professional skills and efficiency technology in firefighting and fire alarm systems.

Arka Sanat is specialized in designing, manufacturing and installation Firefighting and Fire Alarm systems. When it comes to fire safety and extinguishing solutions, reliability is essential. Therefore, Arka Sanat exclusively cooperates with internationally acknowledged partners.

Arka Sanat with his brand that name is “Trust” and RK has multiple experiences of consulting and performing in national industries of Oil and Gas, Petrochemical, Refinery, Mining, Municipality, Airport, Fire department, Administrative and Commercial centers.

However Arka Sanat offers a lot more than products and services. By all means, we are involved during the complete project and the final commissioning to finish every project successfully.



Why Choose Us?



Our strong sense of identification with client projects means that we are constantly striving to provide solutions, even for issues they aren't yet aware of. To this end, we adopt a progressive approach to technology and marketing techniques.

This sense of identification also means we value and promote seamless interaction with clients' own teams, and ensure the best value is obtained from their event budget, We love what we do, some might say a bit too much & we bring enthusiasm and commitment to every project we work on.



Focus on quality



Professional



Great company value



Quick response



20 years of experiences



Passionate team

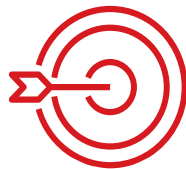
Our Best Services

Today, The Arka Sanat provides Fire Safety Systems with integrated solutions for any fire protection challenge, The Arka Sanat profession focuses on Designing and Construction a wide variety of safety equipment to human health and safety in the workplace. Rely on Arka Sanat to deliver:



Design & Engineering

Arka Sanat engineering services leverage the cross-functional group of experts at RK to deliver creative, accurate solutions to complicated challenges in a shorter period of time.



Procurement

Making the details come together is critical to a projects success. Our team works with suppliers to negotiate competitive pricing, delivery expectations, logistics, and administrative details. They also work closely with project management to assure all items are at the site when needed in good condition.



Construction

Arka Sanat provides predictable and reliable service for firefighting and Fire Alarm Systems. we offer accountability for results. Safety was the driving force behind the decision to start our company, and it remains a crucial factor on every construction project.



About Our Product

We are a professional & solid company team who works with passion & skills to provide the best design for business needed.

Arka Sanat Company will provide all parts of Foam System Package with the highest quality, as follows:

- Rectangiular Foam Chamber
- Circlar Foam Chamber
- Deflector
- Rectangiular Foam Pourer
- Rectangiular Foam Pourer
- Foam Propoetiner
- Foam Concentrate

These are manufactured in corrosion resistant material, bronze and brass and are suitable for both onshore and offshore applications.



We can imagine that you still have some question about you own specific sicuation after reading this leaflet. Our callegues will be pleased to help you by making a good chance for your kind of risk, Please contact us:

+98 21 2284 9427

+98 21 2288 7675

info@arkasanat.com

www.arkasanat.com

Foam Chamber

Foam Chambers are an integral part of tank farm fire protection systems.

As an end of line device the foam chamber must introduce expanded foam on to the surface of flammable liquids with minimal submergence or fuel agitation ensuring the formation of an effective foam blanket with superior extinguishing capabilities.

The Arka Sanat's foam chamber range is classified as a Type II discharge device as stipulated by NFPA11.



Features:

- Fluid Chamber meets foam System requirement as per NFPA-11
- Fluid Chamber Models to cover flow range from 75 LPM to 2700 LPM
- Available in two choices of Type, Cubic & Cylindrical
- Fluid Chambers are compatible for all types of Low Expansion Foam Concentrate such as Protein, Fluoroprotein, AFFF & AR-AFFF
- They are available in Carbon Steel & Stainless Steel construction

Specifications:

- Body: Carbon Steel / Stainless Steel
- Vapor Seal Device: Calibrated Glass
- Air Suction Port Check Valve: Brass
- Orifice Plate: Stainless Steel 316
- Expansion rate: 1:5 to 1:8 (depending on foam concentrate type)
- Finish: Red RAL 3000





It is better to fail in originality than to succeed in imitation



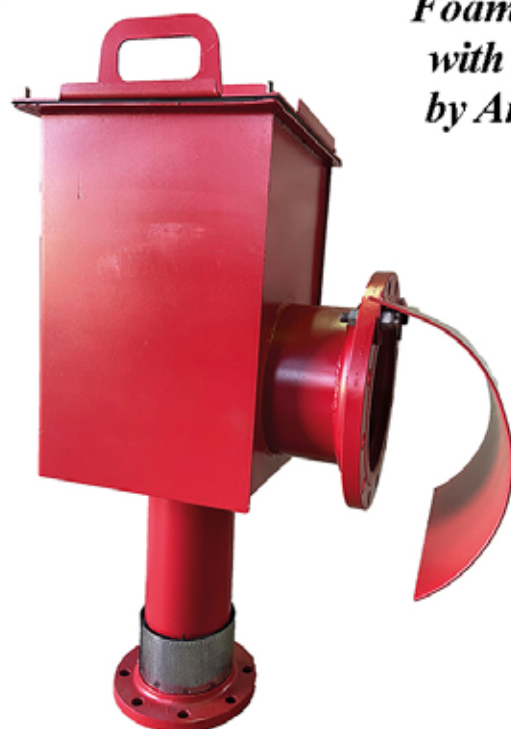


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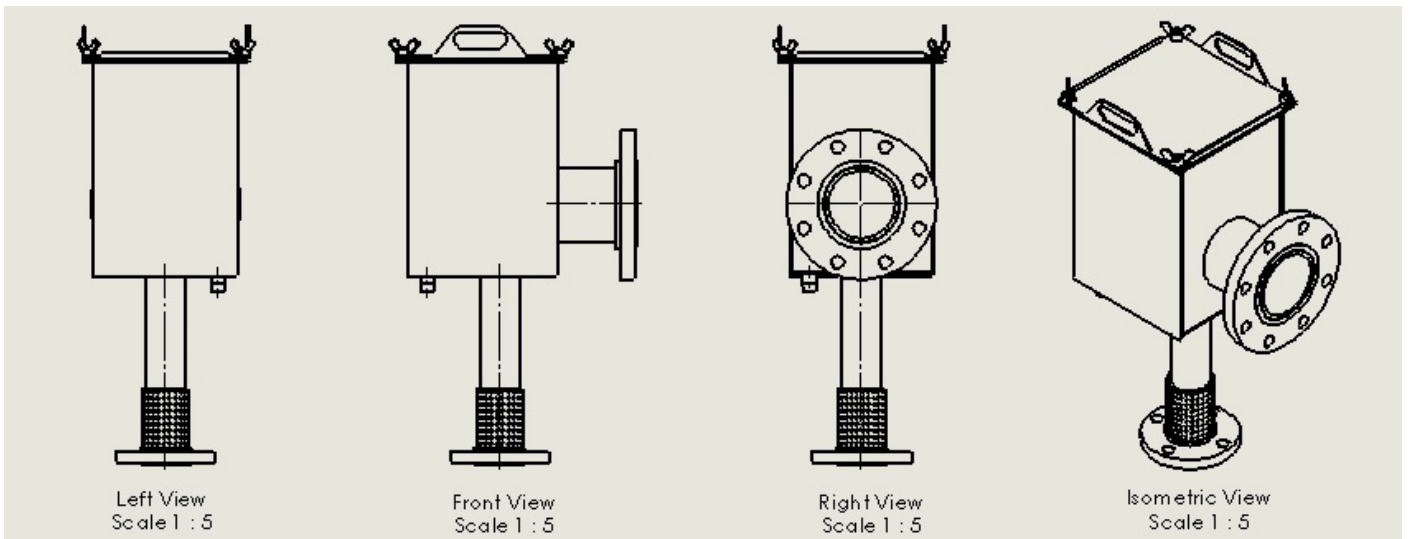
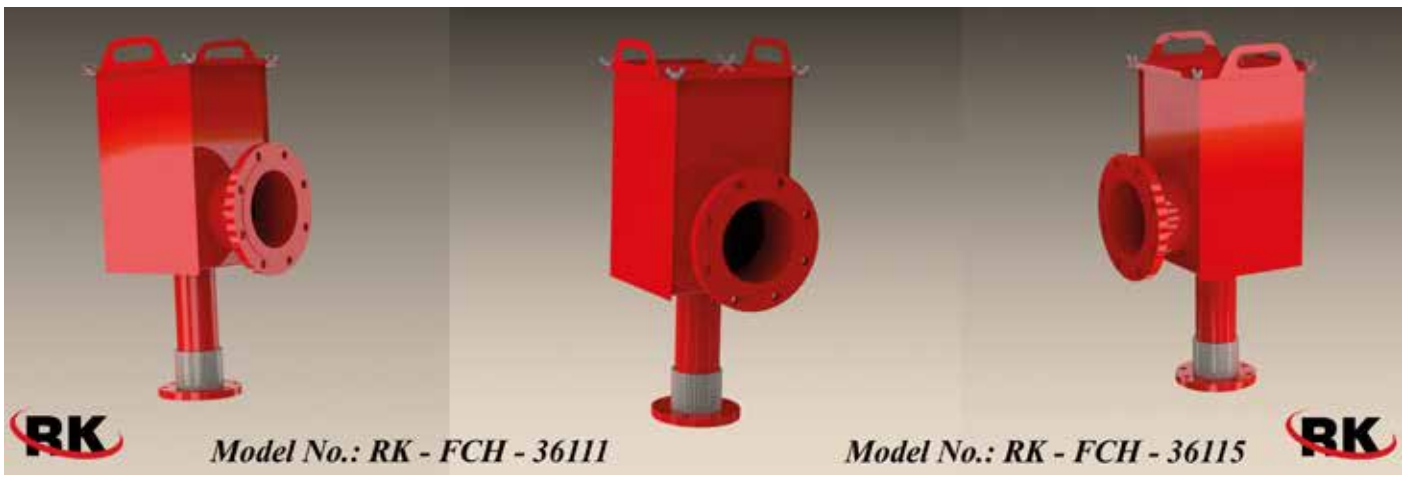
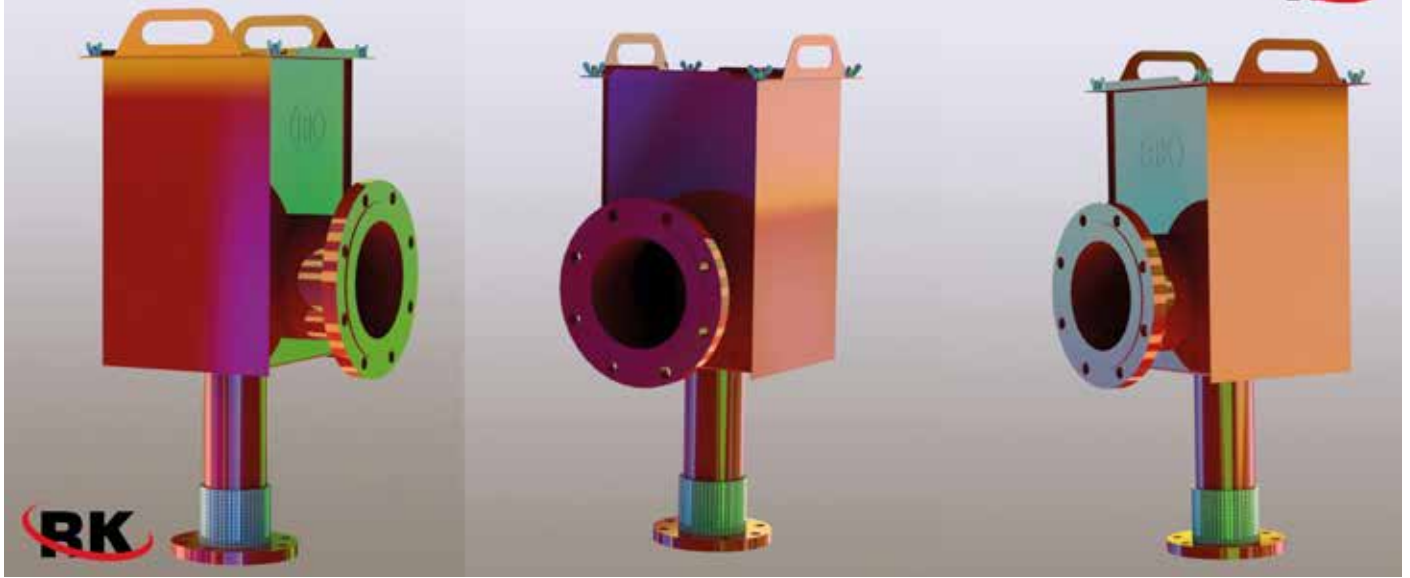
RK *Trust*
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Firefighting & Fire Alarm Systems

*Foam Chamber
with Deflector
by Arka Sanat*



Model No.: RK - FCH - 36111

RK



Circular Foam Chamber

The foam chamber assembly shall consist of a chamber body with an integral foam maker and orifice plate.

A foam deflector and foam chamber mounting pad shall be available for use with the assembly as required.

The foam chamber body shall be of steel construction with a epoxy finish.

For ease of access to the vapor seal, the chamber body shall contain a hinged inspection hatch secured with stainless steel captive bolts.

The hatch shall also contain a lifting handle designed to support the weight of the chamber for hoisting.

The foam maker shall contain a stainless steel screen that is cylindrically shaped to conform to the air inlet surface to help prevent damage.

The inlet to the foam maker shall be a raised face flange with an orifice sized to allow the required flow rate of foam solution at the available pressure.

A split foam deflector shall be provided for either bolting or welding to the mounting surface, or for installation from the outside wall of the storage tank. For bolting applications, a mounting pad shall be available with a stud pattern compatible with the flat-face flange of the foam chamber body and the foam deflector.

Specifications:

- Body: Carbon Steel / Stainless Steel
- Vapor Seal Device: Calibrated Glass
- Air Suction Port Check Valve: Brass
- Orifice Plate: Stainless Steel 316
- Expansion rate: 1:5 to 1:8 (depending on foam concentrate type)
- Finish: Red RAL 3000



Foam Chamber
by Arka Sanat (RK)



Model No.: RK – FCH – 24221



Foam Chamber Application

It is a fixed type foam fire-extinguishing system that is installed on the upper side of combustible oil storage tank and discharges the foam to the surface of fluid stored inside the tank in case of fire to separate oxygen from air. When the aqueous solution mixed with the foam agent is released through the orifice inside the foam chamber, the barrier film for preventing the backflow of oil mist ruptures and the low-expansion foam is generated by mixing the aqueous solution and the inhaled air.

The foam is not scattered by the deflector installed on the inner wall of the tank, but flows along the inner wall, and flows on the surface of the oil. Vapor seal for blocking the inside of the foam chamber includes seal glass and a rupture disc. It prevents oil mist and gas generated from stored oil etc. from entering the piping connected to the foam chamber to protect life and damage of equipment, which ruptures and releases foam.



A deflector includes type II used for a cone roof tank and floating roof tank.

Inlet pressure should be at least 3.5 barg or higher when installing a foam chamber.

To select the size of the Foam Chamber use the following formula:

$$Q = K P^{1/2}$$

- Q = Total solution flow in litres per minute.
- K = Constant for Foam Chamber
- P = Inlet pressure in kg/sq.cm.



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+98 910 401 0344



info@arkasanat.com



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Foam Chamber Installation

Foam solution is supplied to a “foam chamber”. The foam chamber aerates the foam solution. The aerated foam is then agitated in the mixing chamber, creating a thick, durable foam blanket. Once the foam blanket covers the fuel surface, the fire will be extinguished.



DEFLECTOR:

It shall be installed in such a way that the expansion foam made in the foam chamber during the fire is scattered so that the flame can reach the oil surface which is a combustible material without evaporation.

Foam attached to the inner wall of the tank connected to the foam chamber vent hole is not scattered but flows along the inner wall of tank so that the contact between the combustible material and the air is blocked, allowing cooling extinguishing to be rapidly performed.

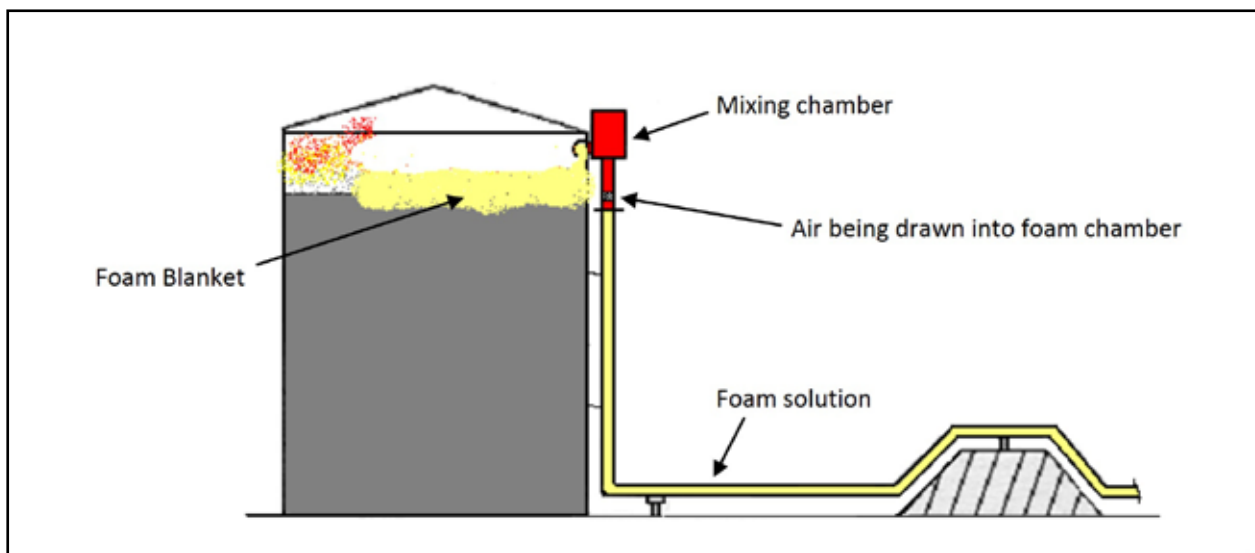
It includes type II and special type, and is made of carbon steel or stainless steel.



VAPOR SEAL:

It is installed inside the foam chamber in order to prevent the leakage of harmful substances such as oil mist generated from the combustible substance stored in the tank and to prevent damage of

the fire extinguishing equipment due to explosion in case of fire. Seal glass made of glass is mainly used, but rupture disc may be used depending on the type of stored substances or when the oil mist pressure is high.



Trapezius Rimseal Foam Pourer

The rim seal foam pourer is designed to discharge fully aspirated foam directly to the annular seal area of the open top floating roof storage tanks for fire or vapor suppression. Fully aspirated foam provides the most effective performance for all types of foam concentrates.

The rim seal foam pourer is designed utilizing the Trapezius Type and Rectangular Type. The rim pourer design to aspirated foam on the protected area of the floating roof tank and allows a uniform and cohesive foam flow.

The Trapezius & Rectangular Rim Seal Foam Pourers are both classified as Type II discharge devices in accordance with NFPA 11, "Standard for Low-, Medium-, and High-Expansion Foam."



- The cover of the unit, opposite of the foam solution inlet, is designed for removal to allow for internal inspection. The unit can be mounted on the top flange of the fuel storage tank utilizing the mounting holes located in the base of the rim seal foam pourer or by the use of clamps.
- A screened air inlet, conforming to the cylindrical body, allows uniform air distribution into the foam solution stream to generate expanded foam. This design also helps prevent damage and inhibits the entrance of foreign materials.
- A removable orifice plate at the threaded inlet is sized to deliver foam solution over a range of flow rates depending on the inlet pressure. The acceptable operating pressure range is 30 psi to 150 psi (2.1 bar to 10.3 bar).
- A stainless steel foam solution strainer is provided at the foam maker inlet. The strainer is secured by a snap retaining ring to allow removal for inspection and cleaning.



Rectangular Rimseal Foam Pourer

Arka Sanat's Rim Seal Foam Pourers are air-aspirating foam discharge devices that are designed to protect floating roof, flammable liquid storage tanks. Specifically, the protected storage tanks must be open-top construction with either double-deck or pontoon-type floating roofs.

Rim seal foam pourers are used with various types of proportioning systems such as bladder tanks, balanced pressure pump proportioning systems, or line proportioners. The foam pourers can be used with low-expansion foam agents.

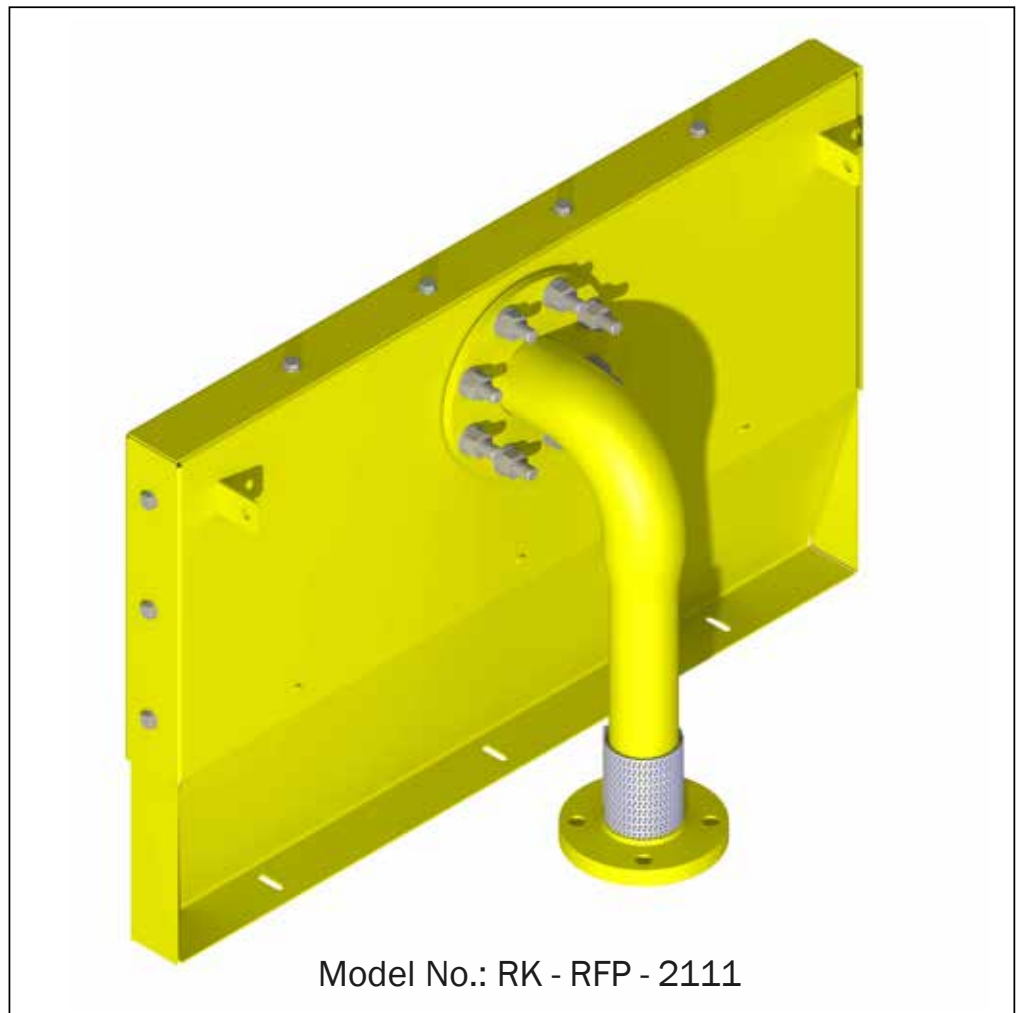
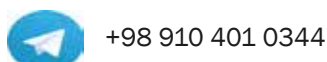
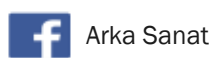
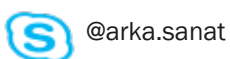
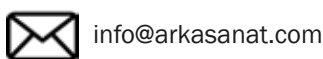
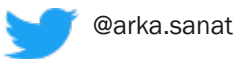
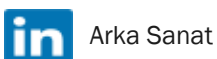
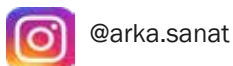


Specification:

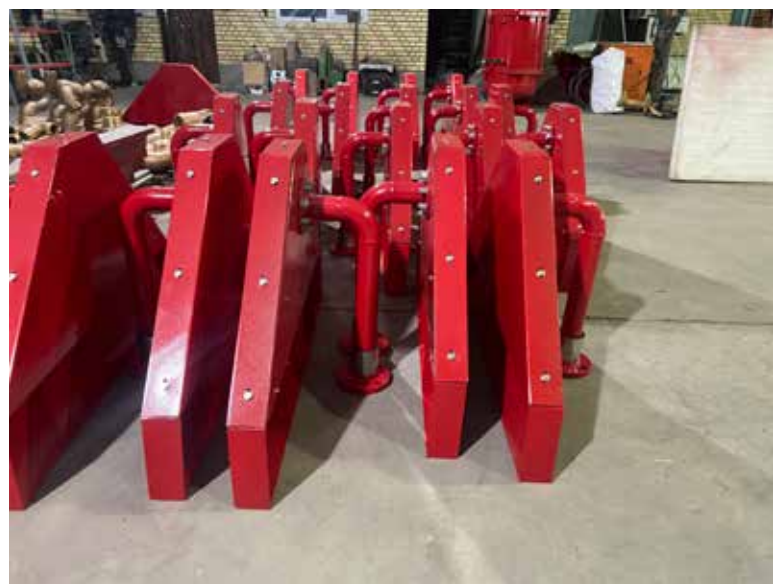
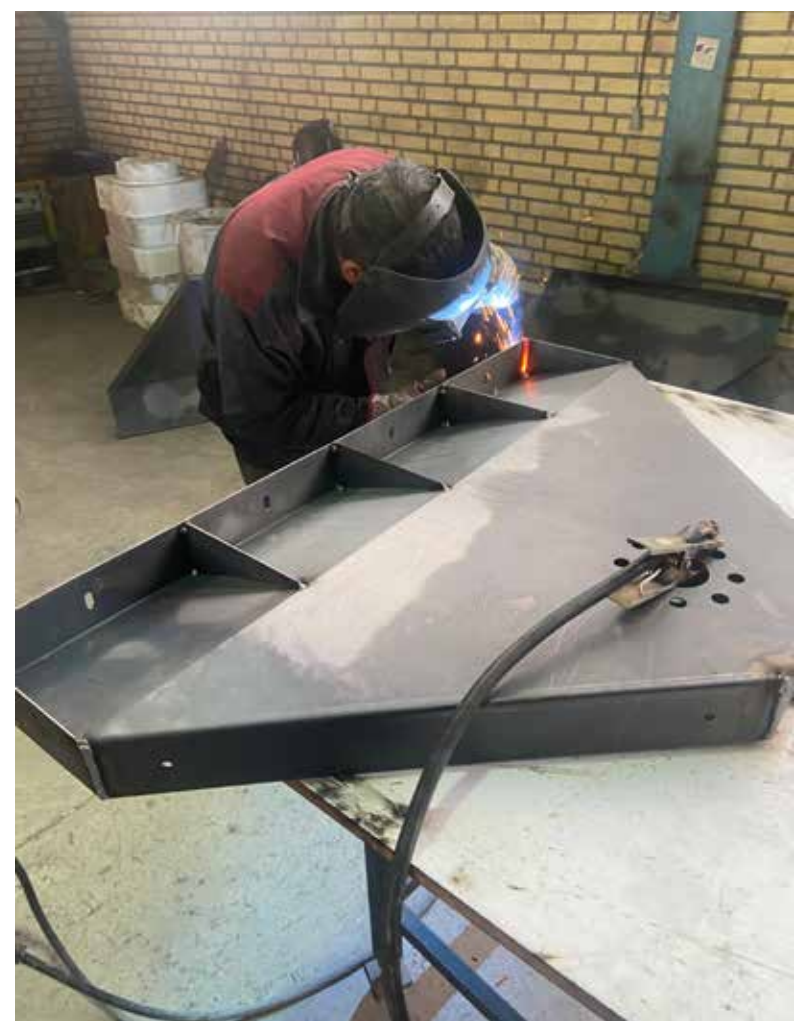
- Location: Fuel Oil Tanks Bund Wall
- Operating Pressure: 3.9 to 6 barg.
- Design Pressure: 12.1 barg.
- Temperature Range: -5 to 55 C deg.
- Inlet Connection: Flange ANSI B 16.5 #150
- Body Material: Carbon Steel / Stainless Steel
- Strainer Material: Stainless Steel
- Orifice Plate: Stainless Steel
- Bolt & Nut: Dichromate
- Paint: Red RAL 3000 or Yellow



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Model No.: RK - RFP - 2111



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Arka Fire Solution



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Where is the foam fire extinguisher used?

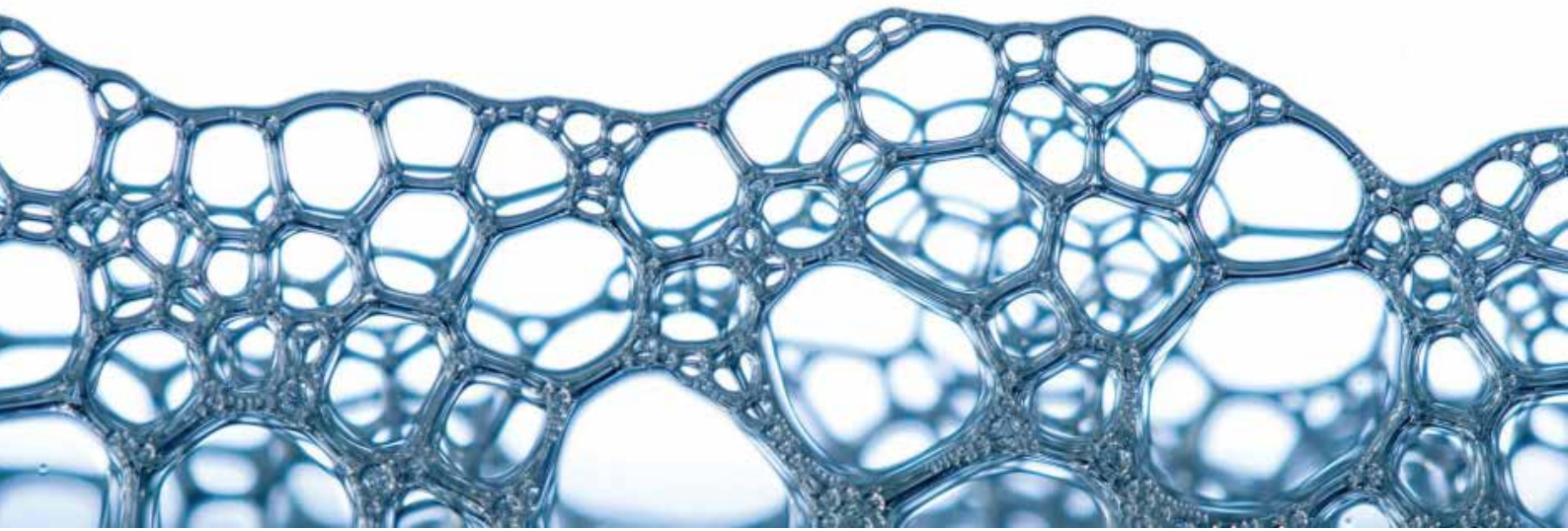
Sparkling fire extinguishing; hydrocarbon fires and the above fire types called Polar Solvents, Foam extinguishing systems, which are widely used in aircraft and helicopter hangars, in warehouses, in stations where fuel is loaded or unloaded, in paint making facilities, in chemical producing or storing facilities, in storage areas of flammable and combustible fluids, in filling areas in flammable and combustible liquids, in shipyards, in oil refineries, it is preferred in similar areas. Due to its ability to handle immediate intervention and control quickly, it acts in a short time on the flammable surface and avoids possible major fires.

Foam has a lower density and can be adhered to both the horizontal and vertical surfaces by the combination of the foam with the pressurized water. Foam extinguishing systems also prevent explosive gases from escaping at the same time.

Areas of use for foam extinguishing systems include for example:

- Aircraft maintenance halls
- Helicopter landing pads
- Offshore platforms and ships
- Pipeline pumping stations
- Logistics halls with a high percentage of plastic
- Mineral oil tanks including the collection containers
- Transporting stations for mineral oils and much more
- Chemical industry
- Refineries
- Petrochemical Plant
- Power plants
- Waste incineration plants
- Tyre warehouses
- Coal silos





An Overview for Foam Fire Protection

There are many ways to put out a fire. Depending on the situation, a fire protection system can be designed to work with various fire suppression agents. Plain water is commonly used because it is easily available and effective in many cases. However, water is not always the best choice. Other options include inert gases, dry or wet chemical agents, and different types of fire suppressing foam. In this catalogue, we will discuss foam applications.

Appropriate design and maintenance of a foam-based fire protection system requires an understanding of how and why foam is used. Therefore let's first take a look at foam applications in fire protection.

When to use a foam-based fire protection system foam:

Foam is typically the fire suppression agent of choice in situations where combustible or flammable liquid is stored in tanks or bulk storage facilities. It is especially effective when the flammable liquid has a surface where the foam can be applied. Unlike water, which is heavier than most flammable liquids and will sink ineffectively to the bottom, fire suppressing foam is lighter and will rise to the top. There, it creates a blanket on the surface, reducing vapor formation, preventing oxygen from reaching the combustible liquid and effectively smothering the potential fire.

High expansion foam can also be used to extinguish a fire in a contained space. When used in a railway tunnel, aircraft hangar or other defined space, foam is effective at quickly filling an area and smothering the flames.

Finally, foam also has a cooling effect like water as the foam solution consists mostly of water (~ 97%).

When NOT to use foam for fire protection!

Foam is not recommended in the following scenarios:

- **Electrical fire:** Where high voltage electricity is involved, the use of foam is highly dangerous. Foam contains water, which is an electrical conductor. Therefore, the risk of electrocution is high. However, it is possible to use foam on an electrical fire if the electricity is first disconnected.
- **3-Dimensional fires:** Foam works best when it can form a blanket or barrier between flammable liquid and air. If a fire is spread out in three dimensional space the foam can't smother it effectively.
- **Pressurized gases:** NPG, LPG, and other fuels which are gaseous at atmospheric temperature and must be pressurized and liquefied to store are typically not appropriate candidates for foam-based fire protection. These substances are very volatile and can release a large volume of vapors.
- **Burning metals:** When water or water-based substances are applied to some burning metals, it can form a chemical reaction that releases a lot of heat. It can actually explode like fireworks and create a very dangerous situation.

Type of Foam Concentrate

Fire suppression foam is comprised of three parts: foam concentrate, water, and air. When mixed correctly, these parts form a homogeneous foam blanket that extinguishes flames by the combined mechanisms of cooling, separating the flame source from the product surface, suppressing vapors, and smothering. This makes foam suppression systems an effective option for protecting flammable and combustible liquids.

- P foam is a protein foam: Produced from a carefully controlled blend of hydrolysed protein, foam boosters, stabilizers & preservatives. This ensures the production of stabilized fluid foam. This type of foam should be used as proportioned solution in fresh or sea water.
- FP is a fluoroprotein foam concentrate containing fluorinated surfactant in a carefully formulate protein foam liquid.
- AFFF is an aqueous film forming concentrate consisting of fluorocarbon & hydrocarbon surfactants with various solvent, preservatives & stabilizers. The foam forms an aqueous film that rapidly cuts off the oxygen supply & thus knocks down the fire.
- FFFP is a film forming fluoroprotein foam concentrate containing hydrolyzed protein & preservatives, together with a blend of fluorinated surfactants to achieve the maximum synergistic effect.
- Alcohol Resistance (ARC) is a high efficiency multi purpose film forming foam. The main advantage of ARC is the better induction ratio on all class B fires, also polar solvent.



Proportioning Equipment

Foam proportioning equipment is a crucial element of foam firefighting system as it ensures the correct mixing ratio of foam concentrate to water. Arka foam proportioning systems consist of various products including foam bladder tank proportioners, foam inline inductors, foam ratio controllers and inline balance pressure proportioners.

Common to all fixed foam fire fighting systems is the need for a suitable induction/proportioning system to mix a pre-determined amount of foam concentrate with the fire mains water to produce a foam solution. The foam solution is then supplied through the fire system pipework to a finished foam generator or other delivery device.

The selection of the correct proportioning system is of paramount importance to ensure foam is delivered at the required application rate to extinguish the fire.

In most cases a foam induction/proportioning system will consist of one of the following types:

- Inline inductors
- Bladder tank Proportioner
- Foam Dosing Pump





“A satisfied customer
is the best business
strategy of all”



Every client is unique, every situation is different. Practices turn to Arka Sanat for lots of reasons. But, in most cases, it distills down to a single word: Trust.

- Trust in our experience.
- Trust in our solutions.
- Trust in our results.

Contact Us

Arka Sanat CO.

Unit 12, No. 5, Behesht Asa St.
Shariati St, Tehran, Iran

Tel: +98 (021) 2284 9427

E-mail: info@arkasanat.com

Website: www.arkasanat.com