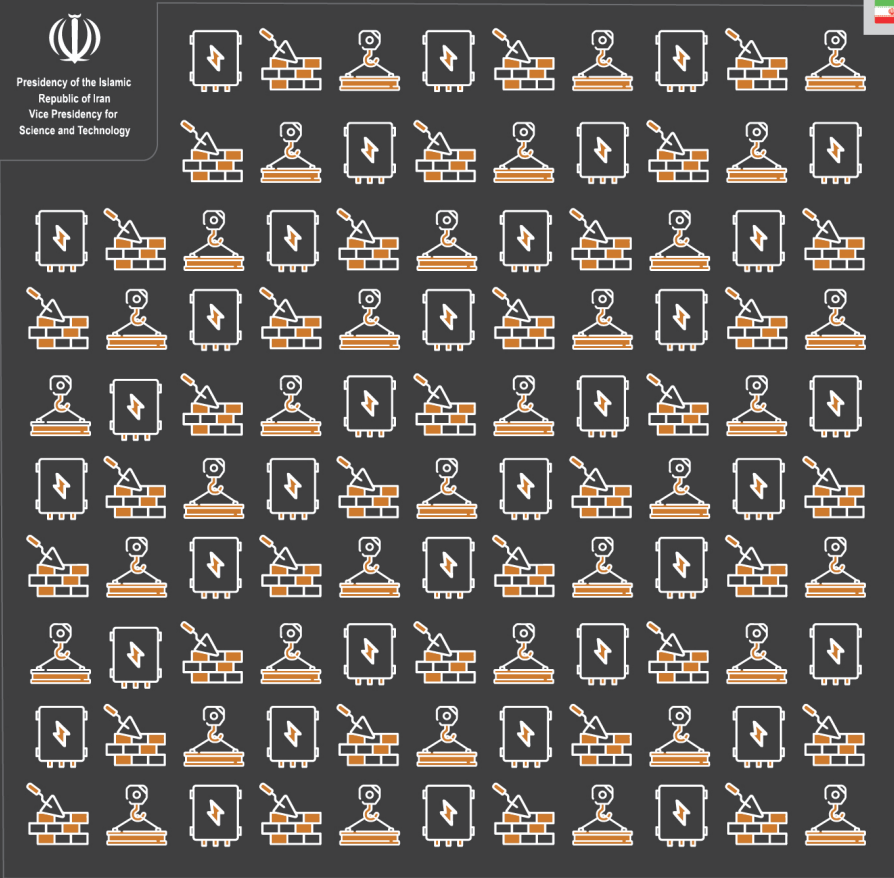




Presidency of the Islamic  
Republic of Iran  
Vice Presidency for  
Science and Technology



Sixth Volume

# CONSTRUCTION INDUSTRY

*Knowledge-Based Products and Equipment*

# مجلس المدینة العلمیة

SIXTH VOLUME

## Knowledge-Based Products and Equipment Construction Industry





Presidency of the Islamic  
Republic of Iran Vice Presidency for  
Science and Technology

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— [www.etdf.ir](http://www.etdf.ir) —



— [www.ihit-expo.com](http://www.ihit-expo.com) —

## Knowledge-Based Products and Equipment Sixth Volume: Construction Industry

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<b>Supervisor:</b>	Export Development and Technology Transfer Fund (ETDF)
<b>Email:</b>	<a href="mailto:info@etdf.ir">info@etdf.ir</a>
<b>Website:</b>	<a href="http://www.etdf.ir">www.etdf.ir</a>
<b>Tel:</b>	(+98) 21 910 700 80
<b>Address:</b>	No 4, Eram Alley, North Shirazi St., Mollasadra St., Vanak, Tehran, Iran, P.O BOX 1991734784

# Preface

One of the key factors in a nation's industrialization and economic complexity is technology. Complex economies can connect vast networks of individuals with relevant information to produce a variety of knowledge-based goods. Indeed, the types of goods or products that are ultimately supplied to international markets are taken into account when determining the complexity of an economy.

A knowledge-based economy is one in which the application of knowledge and information plays a significant role in shaping production and distribution, and where investments in knowledge-based businesses have drawn particular attention. Along with enhancing nations' competitiveness, the transformation of economies into knowledge-based economies has the potential to have a significant impact on international trade.

7000 knowledge-based businesses in Iran provide knowledge-based goods that are the result of the expertise and experience of professionals and university graduates. These businesses, which occasionally resemble enormous technology factories, sold more than 10\$ billion worth of goods last year and exported 1\$ billion or so to various nations. The Presidential Deputy for Science and Technology is recognized as the most significant authority for direction, leadership, and development of the technology area in Iran. It serves as a support organization for startups and knowledge-based businesses by finding and selecting these enterprises. This book, along with 19 other books, is a carefully curated selection of goods with a track record or export potential that was put together using data provided by chosen businesses for presentation to foreign clients, business people, and government and academic officials interested in using these goods. To review the company's manufacturing and distribution records, access to technical knowledge and specialized human resources, production and export capacities, and after-sales services, two specialized and commercial committees were formed separately, and each committee reviewed the products in detail with the participation of technical and commercial experts.

In this procedure, specialized committees were held with the collaboration of the experts of the center of companies and knowledge-based institutions of the Deputy for Science and Technology, headed by *Dr Reza Asadi Fard* and Coordinated by *Engineer Mojtaba Houshmandzadeh*. In addition, *Engineer Mehdi Ghaleh Noei* and *Engineer Ruhollah Estiri* presided over commercial committee meetings, which also included businessmen from the private sector, and I want to express my gratitude to these two groups for their work and assistance.

I also want to appreciate the project manager, *Zahra Afzali*, who has taken on a lot of responsibility and given close attention to the project's design and development from the beginning with innovative ideas.

I also think it's important to recognize and express my gratitude to my other colleagues for their efforts in gathering, reviewing, contacting firms, selecting, and rewriting texts, and finally editing and creating this book:

Project monitoring and editing team: *Mohammad Torabi, Fereshte Elahi*

Evaluation team: *Mohammad Ali Pour Ebrahim, Kaveh Ashjaee, Isa Kazemi, Mehdi Hassanzadeh*

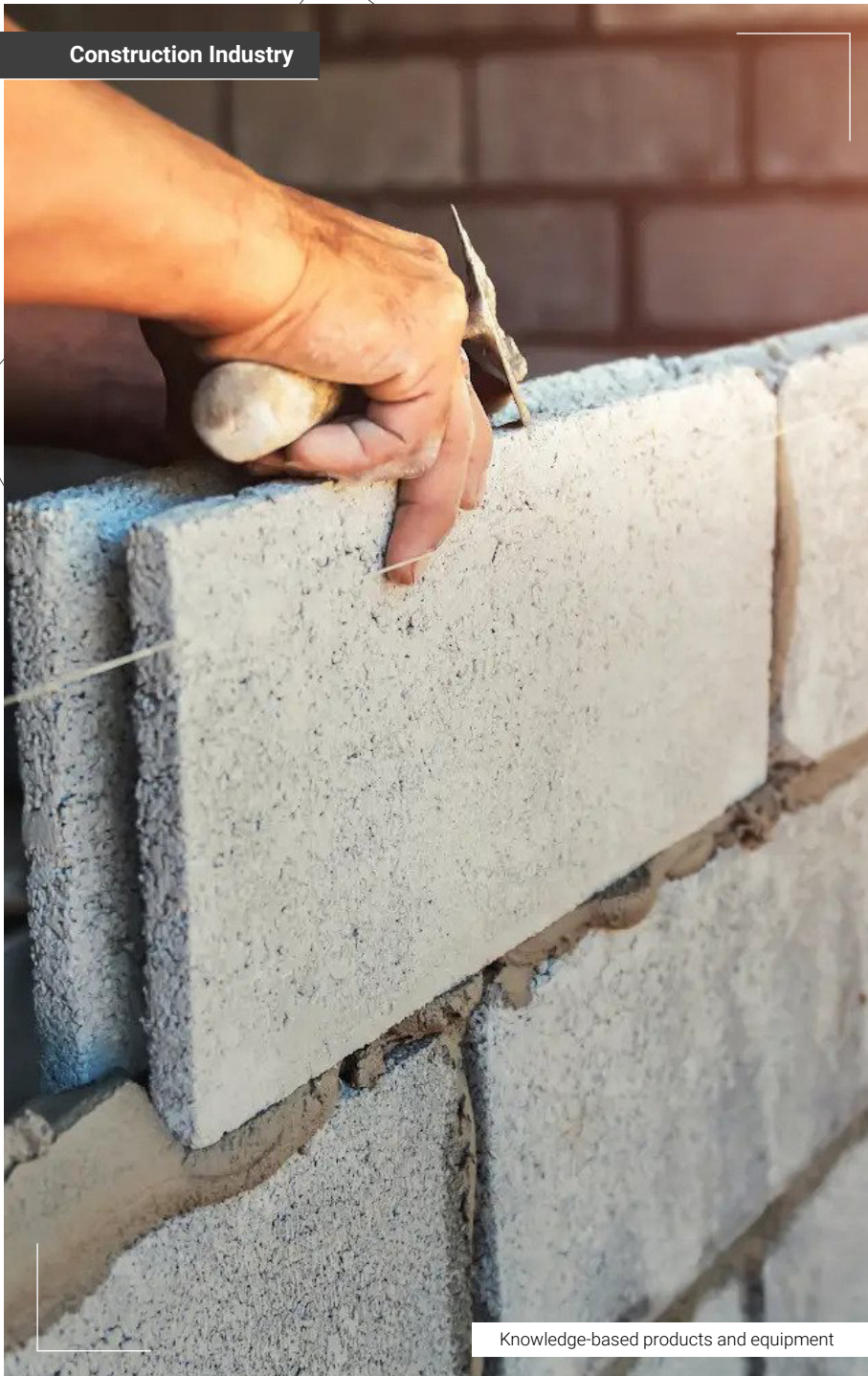
Editorial team: *Samaneh Godarzi, Zahra Farahani, Fatemeh Mohammadi Siani, Mohammad Matin Shirzad*

Design team: *Mohammad Hossein Pourdabbaq, Masoud Khalili*

I want to underline that the aforementioned goods may be offered in a variety of ways in the country of destination, including export of end products, export of semi-finished and assembled products at the destination, joint production in the destination country and other economic cooperation. In each of the aforementioned scenarios, the Export Development and Technology Exchange Fund is prepared to co-invest in the target countries and guarantee the purchases as a financial sponsor of knowledge-based export enterprises.

The book's conclusion also includes a list of export management firms authorized by the Deputy for Science and Technology for communication, Iran Houses of Innovation & Technology (iHiTs), located in several countries, and commercialization and technology transfer agencies. Finally, I am hoping that this book will be beneficial to the readers and provide them with a thorough grasp of Iranian technological advancements.

Regards,  
**Mehrdad Amani Aghdam**  
CEO of Export Development and Technology Transfer Fund



Knowledge-based products and equipment

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Knowledge-based products and equipment

# Introduction

## The Origin of Industry and Export in The Eyes of Iranians

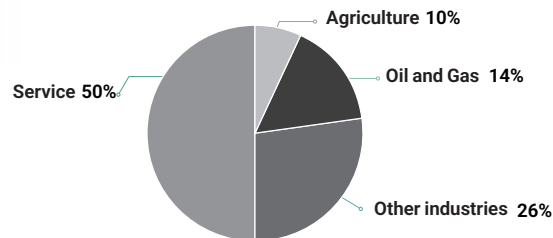
The ancient land of Iran has long been the source of knowledge and industry, and Iranians have played a significant role in the development, evolution and promotion of science and human awareness. Most historians of the world believe that most of the advances in science and human civilization are owed to Iranian civilization and the most brilliant works of art and the highest industrial levels has come from the minds of Iranians. Metalworking industries, agricultural industry, pharmacy and alchemy with themes including tile glazing, carpet dyeing, fabrics and glass were some of the industries that were considered by ancient Iranians. In parallel with the special attention to the development of industry, the history of mutual trade relations between Iranians and other civilizations in East and Central Asia, Europe and Africa has a long history, and Iranians have played a significant role in the expansion of global altruism since long ago by being on the route of the Silk Road and maritime trade.

We Iranians today, like our ancestors, consider industry, art and production in our ancient land to be a transformative and constructive place, and we consider the development of technological interactions and the trade of knowledge-based industrial products with other countries as an opportunity for friendship and the expansion of ties.

### Industry and Export in Today's Iran

Industrial development has a very important place in the plans and policies of the Islamic Republic of Iran due to the creation of value added, job creation, increase in exports and reduction in imports, and the transition from an economy dependent on oil and mineral raw materials to an industrial and manufacturing economy, especially an economy dependent on new technologies, is a grand plan that has been adopted for this purpose. Currently, 50% of Iran's gross domestic product is allocated to services and another 50% to industry and manufacturing, which includes 10% agriculture and food industry, 14% oil and gas industry, and 26% other manufacturing industries.

The Share of Various Activities in Iran's GDP

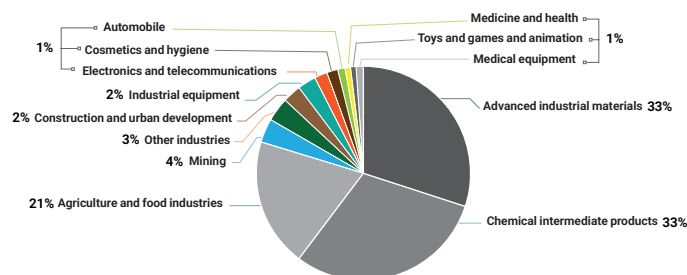


In the meantime, various industries such as pharmaceuticals, medical equipment, construction, communications and telecommunications, energy, mining, chemicals, etc. have a special share of Iran's gross domestic product, and their production, in addition to covering a considerable amount of country's domestic needs, are exported to various destinations.

According to World Customs Organization data, in 2021, the Islamic Republic of Iran had exports equal to 75 billion dollars, almost half of which is allocated to non-oil industries and processed industrial products. Advanced industrial materials, chemical intermediate products, agricultural products and food industry are all among the biggest exporting industries with more exports.

### Iran's Exports in 2021

Ref: Trade Statistics for International Business Development <sup>1</sup>



Regarding the main export destinations of Iran, it should be noted that China, India, Indonesia, Russia, Uzbekistan, Ghana, Germany and South Africa, as well as among the regional neighbours, Iraq, Turkey, UAE, Afghanistan, Pakistan, Oman, Turkmenistan, and Azerbaijan account for the largest dollar value of imports from Iran.

### Where the New Technologies Stand in Iran's Industry

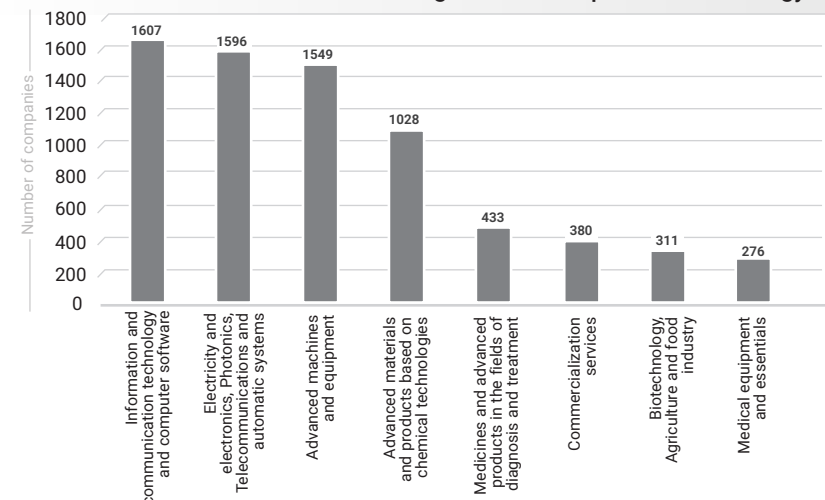
Paying attention to the development of new technologies, commercialization and its influence on manufacturing industries has caused the Islamic Republic of Iran to experience a growing progress in this field in the last decade; An issue that has taken place in Iran in the form of the development of knowledge-based enterprises. Based on this, the meaning behind knowledge-based enterprise is as follows:

A private company that produces products or provides services that have the following three features:

1. The product or service provided by the company has a high or medium to high technology level and its technical knowledge has a significant technical complexity (technology level condition).
2. The product or service design in the company is based on internal research and development or technology transfer (Research and development-based design condition).
3. The company is able to produce and provide the mentioned goods or services to the market (production condition).

Currently, more than 7 thousand knowledge-based enterprises in Iran are producing products and providing services in the field of various technologies. These companies produce more than 15,000 products or services in total, and their direct employees, which generally include people with a high level of education, are around 250,000 people.

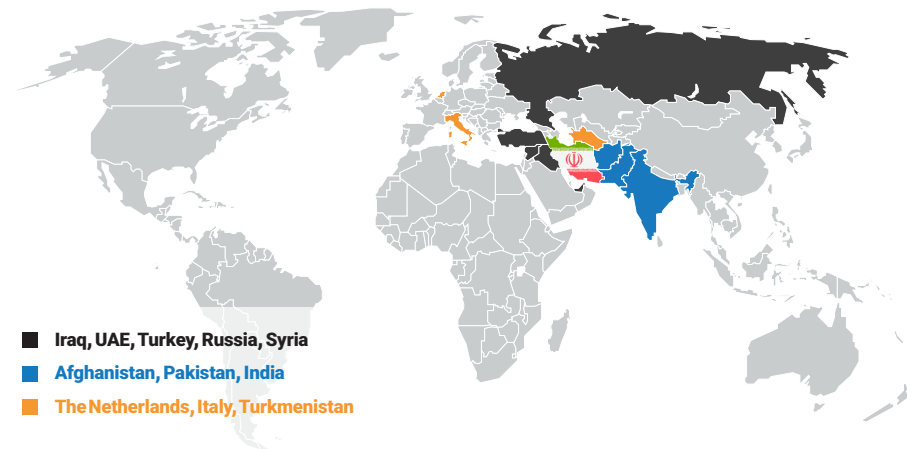
The Number of Knowledge-Based Companies - Technology Fields



<sup>1</sup> www.trademap.org

The export of Iran's knowledge-based enterprises has been growing in the last 5 years, and these companies currently account for about %2 of Iran's non-oil exports.

**The Largest Export Destinations of Iranian Knowledge-Based Enterprises in the Last 5 Years**



**The Status of Knowledge-Based Products in Construction Industry**

The construction industry is one of the most influential industries in the national economy, gross domestic product and job creation of the Islamic Republic of Iran; Since housing, as one of the basic needs of society, has a strong and significant relationship with other economic sectors. This industry has always been a part of Iran's engine of economic growth, and the boom in this sector has become the basis for production and employment in other economic sectors as well.

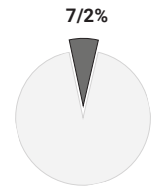
According to the reports of the central bank, the share of the housing sector alone in the gross domestic product is about %4.6, which indicates the position of the construction industry in the national economy of Iran. However, this share has reached %8 in the past years. Also, the construction industry has a special place in Iran's exports. In the last few years, about 850 million dollars, which accounts for %12 of Iran's total exports, has been allocated to this industry.

The age, breadth and diversity of products related to the construction industry in Iran have laid the foundations for the growth of many knowledge-based technologies and products in the areas such as equipment, chemicals, electronics, etc. This issue is understandable considering the activity of more than 550 Iranian knowledge-based companies and the supply of more than 840 technological products by them.

In recent years, special attention has been paid to the development of new technologies in Iran and traditional industries such as construction, have undergone a dramatic transformation through this process and therefore, the activity and production of knowledge-based companies active in this industry have also been associated with good growth. Allocating about %7 of Iran's knowledge-based production and employment to this industry indicates this fact.

Lastly, regarding the export of knowledge-based products in the construction industry, it should be noted that a total of 615 million dollars worth of products of the knowledge-based companies active in this industry have been exported outside Iran in the last 5 years.

**The Percentage of Construction Industry Companies from All the Knowledge-Based Enterprises**

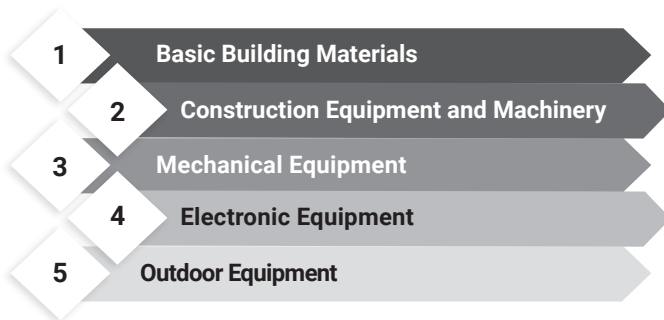


**The Main Export Destinations of Iranian Knowledge-Based Enterprises in the Fields of Construction Industry**



## The Division of Knowledge-Based Products in Construction Industry

As mentioned earlier, the age, breadth and diversity of the products related to the construction industry in Iran have laid the foundations for the growth of many knowledge-based technologies and products in the areas such as equipment, chemicals, electronics, etc. In this book, products have been collected that can be divided into the following categories:



The following describes each of the categories and their subcategories in order to provide a general understanding of these areas:

### 1

## Basic Building Materials

Basic building materials include materials that are used for constructing a building. These materials in the simplest form can be unprocessed or semi-processed natural materials. If new technologies are used to add a special feature to these materials, knowledge-based materials will be created that can be divided into the following subcategories.

- **First Section | Cement, Concrete and Admixtures:**

Cement is one of the key materials in construction and due to its resistance to heat, moisture, etc., it is used as the best material in the construction industry. In this subcategory, cement and concrete reinforced with new technologies such as nanotechnology or admixtures that add features such as water reduction, plasticizing and so forth, to concrete and cement are presented. Additives that can be used in bitumen are also included in this subcategory.

- **Second Section | Prefabricated Materials:**

They are the building materials that are produced in the factory and transported to the building site for installation and use. This subcategory can include a very wide specimen of materials, but the main focus is on prefabricated materials that have a superior feature resulting from an advanced technology such as high strength, etc.

- **Third Section | Construction Adhesives:**

Materials that are used as adhesives and for sticking materials together are included in this subcategory. These adhesives create special features in the structure, such as increasing the construction speed and strength.

- **Fourth Section | Insulators and Protective Coatings:**

Insulators in buildings are mainly used to reduce energy consumption and are classified into humidity and moisture, thermal, acoustic and fireproof types. In this book, a wide range of insulators and coatings have been introduced, which have cement, ceramic, silica, polymer, or cellulose bases and are used to insulate different parts of the building against fire, heat, moisture, etc.

- **Fifth Section | Construction Sheets:**

Industrial metal sheets are of different types and have various applications in industries. The sheets introduced in this book have special coatings in order to increase productivity in the construction industry and are mainly used to cover the roofs of all kinds of buildings, workshops, sheds, false ceilings, etc.

*Start chapter at page 24 »*

## 2

### Construction Equipment and Machinery

Construction equipment and machinery are important and practical tools in construction projects, and the correct and effective use of these pieces of machinery optimizes time and cost and results in success of construction projects. This type of equipment includes a very wide range of machines. In this book, the machines that are mainly used only for the purpose of making or shaping basic materials at the construction site and produced by knowledge-based companies have been introduced.

*Start chapter at page 134 »*

## 3

### Mechanical Equipment

Mechanical equipment, which is part of construction facilities, can be divided into two general categories, industrial and construction. Industrial mechanical facilities often include water transfer, sewage, ventilation or in general all types of fluids, water and sewage treatment, energy generation from fluid movement, etc., and construction mechanical facilities include various parts that are available for use in different parts of a building. In this category, the production capabilities of knowledge enterprises can be divided into the following subcategories:

- **First Section | Ventilation systems:**

Various systems can be used for ventilation in buildings, including heating, cooling, dehumidification, humidification, and air purification, or a combination of these processes. These systems have various implementation mechanisms and, in this book, only ventilation systems with a high level of technology are mentioned.

- **Second Section | Valves and Water and Sewage Equipment:**

Although most construction valves and water and sewage equipment are not high-tech products, knowledge enterprises produce products that have features such as being smart, and are presented in this subcategory.

*Start chapter at page 152 »*

## 4

### Electronic Equipment

The electronic equipment of the building, which has acquired a wider range with the development of emerging technologies such as IOT, and is no longer limited to the transmission, distribution and use of electricity in homes, has different types and various applications. which are mentioned below:

- **First Section | Meters:**

In this subcategory, all kinds of smart electricity, water and gas meters are introduced. By the term “smart”, it is meant that these meters have the ability to automatically read the meter without the need for a meter reader visit. In addition, features such as remote control capability, flow control capability, etc. are available in some of these meters.

- **Second Section | Building Electrical Equipment:**

In this subcategory, the equipment and the electronic subsystems of a product used in the building are presented. These subsystems with capabilities such as voice recognition or image analysis have the advantage of being intelligent compared to non-knowledge-based systems.

- **Third Section | Building Protective Equipment:**

one of the most important tools for maintaining the security of places and premises is the use of protection systems. These systems consist of a central device and several sensors, which will set off an alarm through a specific process if any of the sensors are triggered. It is also possible to check the conditions remotely.

- **Fourth Section | Firefighting Equipment:**

In addition to the common firefighting equipment that is used to put out the fire, it is necessary to use a series of standards and safety and fire alarm equipment in the buildings to reduce the fire damage and extinguish it in the early stages. Knowledge-based products related to this field are presented in this subcategory.

- **Fifth Section | Building Management System:**

In this subcategory, the equipment and intelligent building management system or the building automation system is presented, which includes a set of equipment and control methods. This category of products uses computers to control and monitor the building's mechanical and electrical equipment, namely ventilation, lighting, security systems, such as traffic control and CCTV cameras, safety systems, including fire alarms, etc.

*Start chapter at page 162 »*

## 5 Outdoor Equipment

Generally, outdoor equipment in the field of construction includes various types of furniture, fire pit, outdoor table and chairs, types of sunshades and canopy, playground equipment, types of lighting, etc., which are designed for creating outdoor space. In this subcategory, high-tech outdoor equipment, such as facade cleaning robots, is presented.

*Start chapter at page 220 »*

# Construction Industry

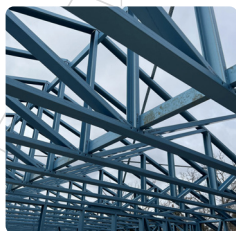
## First Chapter Basic Building Materials

- Cement, Concrete and Admixtures
- Prefabricated Materials
- Construction Adhesives
- Insulators and Protective Coatings
- Construction Sheets



## Second Chapter Construction Equipment and Machinery

- Equipment Related to Construction



## Third Chapter Mechanical Equipment

- Ventilation Systems
- Valves and Water and Sewage Equipment



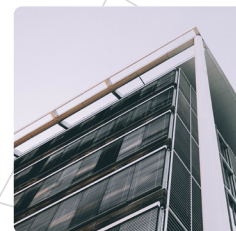
## Fourth Chapter Electronic Equipment

- Meters
- Building Electrical Equipment
- Building Protective Equipment
- Firefighting Equipment
- Building Management System



## Fifth Chapter Outdoor Equipment

- Facade washing Equipment



First Chapter

# Basic Building Materials





# 1<sup>st</sup> CHAPTER

FIRST  
CHAPTER

Second Chapter

Third Chapter

Fourth Chapter

Fifth Chapter

## Basic Building Materials

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<i>Prefabricated Materials</i>	○
<i>Construction Adhesives</i>	○
<i>Insulators and Protective Coatings</i>	○
<i>Construction Sheets</i>	○



## ➤ Synthesis of Concrete Water Reducing Polycarboxylates

Alborz Chemie Asia Co.

[www.alborzchem.com](http://www.alborzchem.com)



### Product Introduction:

Polycarboxylate plasticizers are chemical compounds added to concrete mortar, which improve the rheological properties of mortar and make the pumping easier and also cause the mortar to need less water up to 40% while retaining mortar slump.

Several factors such as the type of materials used in mortar, temperature, the amount of water used, the method of mortar processing, etc. are important in choosing the type of plasticizer. The mechanism of effect of this product is that polycarboxylates, in addition to creating attraction with calcium, sodium or other ions on the clay and kaolin particles in the mortar, creates a thin layer of negative charges around the particles. These negative charges prevent the particles from sticking together and agglomerating. As a result, the particles become suspended and are placed at regular distances from each other.

**Founded:**

2008

### Application:

- \* Strong and durable concrete
- \* Impermeable concrete
- \* Self-compacting concrete with special mixing design
- \* Increasing the fluidity of concrete during concreting without the use of water
- \* Precast and prestressed concrete slabs
- \* Concrete and mosaic paving stones and cement plaster

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Chemical name</b>	Concrete admixture based on polycarboxylate ether
<b>Solid content range</b>	25 to 50%
<b>pH range</b>	4 to 7
<b>Physical characteristics</b>	Yellowish cloudy liquid
<b>Specific weight range</b>	1.04 to 1.1 gr/cm <sup>3</sup>

### Advantages:

- \* Lower price than similar products
- \* Better quality than similar products

**International Standards or Permission:**

INSO 2930-1



## ➤ Synthesis of Polycarboxylates that Preserve the Fluidity and Workability of Concrete

◆ Alborz Chemie Asia Co.

[www.alborzchem.com](http://www.alborzchem.com)



### Product Introduction:

In hot and dry areas, as well as centers and stations of concrete production, which are mostly long distances away from the place of implementation, the fluidity and workability of concrete starts to decrease over time. As a result, concrete contractors will face the problems of concrete's lack of workability or so-called concrete hardening. At this stage, the concrete will be unworkable and will not be trowelable, and in the worst-case scenario, the concrete will not be able to be discharged from the truck mixer.

In case of such problems, the most common solution is to add water to the concrete and increase the workability and fluidity of it, but this extra water will reduce the strength, durability and impermeability of the concrete.

In this regard, this product has been produced according to the mentioned points. This product helps concrete manufacturers and contractors transport and implement concrete without facing a decrease in the efficiency and consistency and workability of the concrete.

This solution can be implemented in two ways:

1. Delay in cement setting, which chemically and subsequently prevents water absorption by cement in the concrete.
2. Producing and adding special carboxylate polymers to concrete, which in the form of temporary adsorption causes cement particles to move away from the water and delays water absorption.

**Founded:**

2008

### Application:

- ✳ Production of high strength concrete, C25 and above, and reduction of water to cement in batching and durable concrete with low permeability.
- ✳ Self-compacting concrete and conventional CVC concrete
- ✳ The interlayer mortar of RCC concrete that sticks the concrete layers together.
- ✳ Concreting in hot and dry areas and concreting on the southern shores of the Persian Gulf
- ✳ Concrete that contains microsilica and fly ash and pozzolans and absorb water and cause severe fluidity loss.
- ✳ Concreting on concrete surfaces (road construction and airport runway...)

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Chemical name</b>	Concrete admixture based on polycarboxylate ether
<b>Solid content range</b>	25 to 50%
<b>pH range</b>	4 to 7
<b>Physical characteristics</b>	Yellowish cloudy liquid
<b>Specific weight range</b>	1.04 to 1.1 gr/cm <sup>3</sup>

### Advantages:

- ✳ Lower price than similar products
- ✳ Better quality than similar products

**International Standards or Permission:**

INSO 2930-1



## ➤ Concrete Superplasticizer Based on Polycarboxylate Ether

◆ Abadgaran Construction Chemicals Co.

[www.abadgarangroup.net](http://www.abadgarangroup.net)



### Product Introduction:

Polycarboxylate plasticizers are chemical compounds added to concrete mortar, which improve the rheological properties of mortar and make the pumping easier and also cause the mortar to need less water up to 40% while retaining mortar slump.

These products are of various bases, the most famous of which are polycarboxylates and polycarboxylate ethers.

The existence of many negative charges on the polymer chains of polycarboxylates creates a thin layer of negative charges around the particles. These negative charges prevent the particles from sticking together and agglomerating. Also, polycarboxylate ethers, due to the side chains of polyether, cause more spatial repulsion between particles, which renders the concrete more fluid and plastic, that's why they are also called superplasticizers.

**Founded:**

1993

### Application:

- \* Making concrete and concreting in hot areas
- \* Making attractive and exposed concrete
- \* Large-scale concreting
- \* Concreting in narrow and reinforced sections
- \* Making high performance concrete (HPC)
- \* Making high strength concrete (HSC)
- \* Making self-compacting concrete (SCC)
- \* Making impermeable concrete (WRC)
- \* Making preplaced aggregate concrete (PAC)

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Chemical base</b>	Polycarboxylate
<b>Physical state</b>	Liquid
<b>Specific weight</b>	1.12 ± 0.05 g/cm <sup>3</sup>
<b>Chlorine ion</b>	None
<b>Best storage temperature</b>	10 to 30°C

### Advantages:

Lower price than similar products



## ➤ Concrete Superplasticizer Based on Polycarboxylate Ether with Slump Retention and Water Reduction Properties

White Damavand Co.

[www.white-damavand.ir](http://www.white-damavand.ir)



### Product Introduction:

Polycarboxylate superplasticizers are chemical compounds added to concrete mortar that give important properties to the mortar. They reduce the mortar's need for water by 40% while preserving mortar slump, improve mortar rheological properties, and make mortar pumping easier. These products have various bases, the most famous of which are polycarboxylates and polycarboxylate ethers.

Several factors such as the type of materials used in the mortar, temperature, the amount of water used, the method of processing the mortar, etc. are important in choosing the type of plasticizer. This material is able to maintain the workability of concrete for a long time and prevent the occurrence of cold joints in incontinuous concreting. It is also suitable for use in strong concretes that require high mechanical resistance and good performance.

**Annual Production Capacity:**

12,000 Tons

**Founded:**

2009

### Application:

- \* LNG reservoir, Rapid-transit railroads, Highways, Subways, Tunnels, Bridges
- \* Self-compacting concrete
- \* High-rise buildings with high durability
- \* Off-shore and marine structures
- \* Pre-cast and pre-stressed elements

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Appearance</b>	Colorless to pale yellow liquid
<b>Solid Content</b>	50 ± 1 wt. %
<b>pH</b>	4 ± 2
<b>Viscosity</b>	Less than 500 cps
<b>Density</b>	1.10 ± 0.03 g/cm <sup>3</sup> at 20°C
<b>Chloride Content</b>	Less than 0.01%

### Advantages:

- \* Obtaining high compressive strength by reducing the ratio of water to cement
- \* Increasing the durability of concrete structures
- \* Good compatibility with different types of cement
- \* Good compatibility with silicon soot (micro silica), fly ash and other pozzolanic materials.
- \* Compatible with concrete set accelerator and retarding admixtures



## ➤ Polycarboxylate-Based Plasticizer, Ceramic and Tile Binder

📍 Kimia Ceram Zarin Co.

سرام زرین

### Product Introduction:

Plasticizers in tile, ceramic and refractory industries are chemical compounds added to tile and ceramic mortar, which lead to less water consumption, better rheological properties, more uniform dispersion and greater mechanical strength. We can say a plasticizer is good if it increases the absolute value of zeta potential. Today, various plasticizers are used in industries, which can be divided into two general groups, organic and mineral. Mineral plasticizers are divided into two categories of alkaline cations, including sodium carbonate, soda, potassium carbonate, and polyanionic, including sodium silicate, sodium hexametaphosphate, and sodium tripolyphosphate. Organic and polyanionic plasticizers are also compounds derived from acrylic acid and oxalic acid. The wear resistance of plasticizing products used in tiles and ceramics, especially plasticizers of alumina pellets, must be very high. Organic plasticizers based on acrylic acid are burnt and destroyed at high temperature and therefore do not lead to impurity in the tile.

Tile and ceramic binders are a type of additive added to tile and ceramic mortar that cause the mortar particles to be placed together at proper distances from each other before the final baking. Binders are classified into inorganic and organic categories. Mineral binders include sodium silicate, magnesium aluminum silicates and bentonite. Important organic binders include polycarboxylates, polyvinyl alcohol, starch, CMC, polyethylene glycol, and lignosulfonates. Both the company's binder and lubricant products are polycarboxylate-based and organic.

**Founded:**

2003

### Application:

- ✧ As a plasticizer in the tile and ceramic industry

*This product is a final B2B consumer product.*

### Technical Specifications:

Polycarboxylic acid resins are the product of homopolymer or radical water-soluble copolymerization of acrylic acid, methacrylic acid, maleic anhydride, acrylamide, hydroxymethyl methacrylate, methacrylamide, etc. These resins can also be sulfones, in which styrene sulfone is usually used as a monomer. The presence of many negative charges on the polymer chains of polycarboxylates, in addition to creating attraction with calcium, sodium, etc. creates a thin layer with negative charges around the particles on the clay, kaolin, etc. particles in the mortar. These negative charges prevent the particles from sticking together and agglomerating. As a result, the particles become suspended and are placed at regular distances from each other.

### Advantages:

- ✧ Reasonable price



## ➤ Anti-Moisture and Sulfation Admixture for Concrete

◆ Sefid Bam Kermanian Co.

[www.sefidbam.ir](http://www.sefidbam.ir)



### Product Introduction:

Isopasta (Tiss EP820) is a polymer product based on acrylic resins, which is completely compatible with concrete and prevents sulfate and moisture penetration into concrete.

Acrylic resins have an ionic character, which create a completely waterproof and breathable coating on concrete after drying, and concrete can fully hydrate itself in any condition.

Unlike other products in the market that are made from bitumen and cannot penetrate the concrete surface and are separated from the surface due to moisture's negative pressure, this product is integrated with the concrete surface and can withstand both positive and negative pressure.

**Annual Production Capacity:**

410 Tons

**Founded:**

2009

### Application:

- \* Insulation of all types of tanks, tunnels and concrete waterproofing structures
- \* Insulation of concrete structures exposed to cavitation and sulfate attack
- \* Insulation of building foundation
- \* Making the concrete structure resistant to acidic and alkaline environments
- \* Insulation of concrete surfaces buried in the soil
- \* Insulation of concrete utility poles
- \* Insulation of the walls exposed to rain

*This product is a final B2B consumer product.*

### Technical Specifications:

Physical state	Liquid
Colour	Black
Specific weight (at 22±2 °C)	1.6 ± 0.05 gr/cm <sup>3</sup>
Thermal stability	85 ± 5°C
pH	7.3 ± 0.5
Release rate	0.5 kg per square meter
Character	Ionic
Minimum film formation temperature	0°C
The basis of material formation	Acrylic resin
Surface drying time	3 hours at 20°C
Complete hardening time	72 hours at 20°C

### Advantages:

- \* High compatibility with concrete and prevention of sulfation and moisture penetration
- \* Increasing the life of facilities and reducing the costs of repainting, costs due to damage caused by moisture, dampness, and the growth of mold and fungus, and finally costs related to energy consumption.
- \* Sharp drop in the costs of heating and cooling systems



### Application:

- \* High rise structures
- \* Towers
- \* Bridges
- \* Dams
- \* Special structures
- \* Lightweight shell structures

## ➤ Structural Ultralightweight Nano-Concrete

📍 Behdis Saman Amin Co.

[www.vandidad-co.com](http://www.vandidad-co.com)



### Product Introduction:

Structural lightweight concrete, like concrete; is a normal structure, except that due to economic reasons, light aggregates are used in its construction. Thus, its specific weight is almost two-thirds of the specific weight of concrete made with ordinary natural aggregates. Despite the fact that each cubic meter of light concrete is more expensive compared to normal weight concrete, but due to the lower dead weight and the dimensions of the foundation, the cost of structures made with this type of concrete is lower. The high thermal resistance of this concrete has reduced the speed of heat transfer in them, which has many benefits; Among the most important of these benefits, we can mention the reduction of energy loss and insulation of this concrete.

#### Main Export Destinations:

Iraq, Oman and Southeast Asian Countries

#### Export History:

Up to 500,000 \$

#### Annual Production Capacity:

70,000 m<sup>3</sup>

#### Founded:

2010

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* **Specific weight range:** 1.25 to 1.65 t/m<sup>3</sup>
- \* **Compressive strength range:** 200 to 450 kg/cm<sup>2</sup>

### Advantages:

Lower price than similar products

### International Standards or Permission:

- \* ACI 213: Guide for Structural Lightweight-Aggregate Concrete
- \* ISO 9001:2008
- \* ISO 14001:2004
- \* OHSAS 18001:2007





## ➤ Reactive Powder Concrete Containing Nanoparticles

📍 Larzeh Paidar Azarbaijan Co.

[www.lpa.co.ir](http://www.lpa.co.ir)



### Product Introduction:

Concrete is one of the building materials that is produced by mixing proportions of cement, aggregates, sand and water. Water and cement create an adhesive substance through a chemical reaction, that sticks the aggregates together and creates a hard mass of concrete. Today, concrete is known as one of the most widely used building materials in the world. The low cost, easy access to the constituent components, relatively high malleability and durability of this mixture, as well as the ease of implementation, have received much attention.

Also, the product production steps are as follows:

1. Mixing cement, nano silica and quartz
2. Adding water to the dry mixture in three steps
3. Adding polycarboxylate superplasticizer
4. Adding polypropylene fibers
5. Shaping and vibration and processing

#### Main Export Destinations:

Turkey, Azerbaijan and Iraq

#### Export History:

Up to 500,000 \$

#### Annual Production Capacity:

200 Tons

#### Founded:

2014

*This product is a final B2B consumer product.*

### Application:

- \* Sealing material
- \* Substitute material for steel and cast iron
- \* Resistant material for various environmental conditions

### Technical Specifications:

- \* **Compressive strength:** 80 MPa
- \* **Tensile strength:** 40 MPa
- \* **Concrete permeability:** 15 mm subjected to 5 bar pressure
- \* High compressive and tensile strength
- \* High energy absorption and durability
- \* High malleability
- \* Low permeability
- \* High abrasion and corrosion resistance

### Advantages:

- \* Higher quality than similar products
- \* Being cost effective

### International Standards or Permission:

- \* Certificate of Iran National Standard
- \* Nanoscale Certificate of Iran



### ► Hydraulic Cement (Portland), Geopolymer and Hydrated Cement Based on Bagasse Ash & Lime Mud Waste

◆ Exir Sanaat Siman Sabz Co.

#### Product Introduction:

Exir Plus cement is made from bagasse ash and lime mud and is completely made of waste materials. Also, different methods have been used both in activation and production and in the combination of materials, which leads to the production of this product in the size of micro and nano cement and classified in geopolymeric, hydraulic (Portland) and water geopolymeric categories.

The aforementioned methods for producing this product include 5 main methods that allow for customization and removing the limitations of geopolymers; But the important thing is that you can use the combination of these methods to synergize and further customize the product according to the type of need. In addition to removing Portland cement and the problems caused by its production, this product helps us in optimal use of existing waste and better waste management. This product also removes environmental pollution caused by Portland cement and fossil thermal power plants.

**Annual Production Capacity:**

410 Tons

**Founded:**

2009

#### Application:

- ※ Making mortar for non-structural applications and making all kinds of concrete and concrete structural parts with different specifications
- ※ Special cases that require special resistance or durability characteristics, such as marine structures, underground structures, traverses, tunnel segments, etc.

*This product is a final B2B consumer product.*

#### Technical Specifications:

- ※ Higher compressive strength
- ※ Higher durability and chemical resistance
- ※ Enhanced elevated temperature resistance
- ※ Green and environmental friendly product

#### Advantages:

- ※ Exclusive right
- ※ Zero CO<sub>2</sub> emissions
- ※ Rapid hardening and premature strength gain
- ※ Wide variety of strength classes, per requirement/price
- ※ Green and environmental friendly
- ※ Replacement for cement factories and corresponding costs
- ※ Effective waste management and reduction of environmental impacts of sugar cane production
- ※ Capital revenue from green electricity
- ※ Reversed production process

**International Standards or Permission:**

US patent (No. : US20200361820)



## ► Light Cement Block with Four Tongues and Grooves on the Side Surfaces

◆ Fara Sazeh Beton Caspian Co.

### Product Introduction:

Building blocks are separate, prefabricated pieces of cement and other construction materials that can be used as part of a structure. Some of these blocks are made of cement, and others are made of other building materials. The light cement block with four tongues and grooves on the side surfaces is a light block made of light concrete, including light grain cement and sand. This block with optimal ratios of minimum weight and maximum strength has been obtained from numerous tests.

Although each cubic meter of lightweight concrete is more expensive than normal-weight concrete, due to the lower deadweight and the dimensions of the foundations, the cost of structures made with this type of concrete is lower. The high thermal resistance of this concrete reduces the speed of heat transfer in them, which has many benefits; Among the most important of these benefits, we can mention the reduction of energy losses in such a way that in the cold season, the heat transfer from the inside to the outside and the heat transfer from the outside to the interior of the building in the summer season are very small. Also, the insulation of these concretes reduces the rate of volume changes due to temperature changes, which increases their resistance to heat and frost. The fluffy structure of lightweight concrete makes it capable of absorbing sound, so to some extent, these concretes are also sound insulators.

This block type can be presented in three varieties: double-walled, three-walled, and four-walled. Also, to use blocks more easily in wall construction and to reduce human errors, increase the execution speed and increase the resistance of the wall against the lateral force on its sides, tongues and grooves have been considered for stacking the blocks on top of each other and in parallel. This block can be used in any project that requires wall covering on internal and external walls.

**Founded:**

2019

### Application:

As internal and external separating walls in all construction projects including: residential, commercial, administrative, medical, etc.

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Physical characteristics</b>	<ul style="list-style-type: none"> <li>* Having 4 tongues and grooves on the side surfaces</li> <li>* Creating a spot to place horizontal rebar and the possibility of arming the wall</li> <li>* Creating an area to place a layer of insulation</li> <li>* Light weight</li> </ul>
<b>Types</b>	<ul style="list-style-type: none"> <li>* Double-walled and 10 cm wide</li> <li>* Three-walled and 15 cm wide</li> <li>* Four-walled and 15 cm wide</li> </ul>
<b>Dimensions (cm)</b>	<ul style="list-style-type: none"> <li>* <b>Height:</b> 20 and 25</li> <li>* <b>Width:</b> 10 and 15</li> <li>* <b>Length:</b> 40 and 50</li> </ul>
<b>Combinations</b>	<ul style="list-style-type: none"> <li>* Cement</li> <li>* Sand</li> <li>* Water</li> <li>* Industrial and mineral pumice stones</li> </ul>

### Advantages:

- \* Presence of tongue and groove on vertical and horizontal surfaces
- \* Creating a place for insulating layers
- \* Lower price than similar products
- \* Light weight



## ➤ Homogeneous Bitumen Modifier Based on Polymer

🏠 Civil Abnie Jahan Co.



### Product Introduction:

Many activities have been carried out in the field of polymer-modified bitumen. Various polymers have been used to improve the properties of bitumen, including PE, PP, EVA, SBS, and SEBS. All these polymers improve bitumen properties, but we are confronted with fundamental challenges such as economics, aging resistance, and storage stability of modified bitumen. The homogenous polymer-based bitumen modifier is a unique product with a high percentage of elastomer polymers, which creates a compound resistant to expansion-contraction cycles, increasing elasticity, very high adhesion, and reducing bitumen stiffness at high and low temperatures.

#### Main Export Destinations:

UAE, India, Armenia and Pakistan

#### Export History:

Up to 500,000 \$

#### Annual Production Capacity:

10,000 Tons

#### Founded:

2009

### Application:

Increasing the efficiency and improving the technical characteristics of bitumen, such as extraordinary flexibility at low temperatures, reducing the aging rate, and increasing resistance to heat and ultraviolet rays.

*This product is a final B2B consumer product.*

### Technical Specifications:

Homogeneous non-phase plastomer elastomer improver

### Advantages:

- \* High Quality
- \* Ease of use
- \* No need for advanced devices
- \* Ability to store
- \* Lower price than similar products



**Application:**

- \* Airport runways
- \* Main roads and highways
- \* Inner city streets and competition tracks (motorcycling - speed skating)

➤ **Modified Polymer Bitumen and Asphalt Mixtures**

🏠 Zist Polymer Padide Iranian Co.



**Product Introduction:**

Despite its simple formulation, bitumen obtained by the nano method from vacuum baton (VB) is an efficient product. Modifying the bitumen oxidation method from the traditional mode, i.e., vacuum baton, to the catalytic oxidation mode using a special catalyst, in addition to significantly reducing the bitumen modification time, has also reduced the temperature. Thus, in addition to reducing the decomposition of bitumen components, it reduces energy consumption and environmental pollution.

**Annual Production Capacity:**

180,000 Tons

**Founded:**

2017

*This product is a final B2B consumer product.*

**Technical Specifications:**

Product's 85/100 grade chemically modified and molecular

<b>Penetration rate at 25 °C</b>	115
<b>Soft point</b>	49.3 °C
<b>The amount of tension at 25 °C</b>	51.2 cm
<b>The amount of tension at 15 °C</b>	30.6 cm
<b>Solubility in trichloroethylene or carbon tetrachloride</b>	99.98 %
<b>Ignition degree</b>	208 °C
<b>Percentage of heat loss</b>	0.615% (for 5 hours at a temperature of 163 °C)

**Advantages:**

- \* Using the catalytic method instead of the oxidation process
- \* 15 year warranty
- \* Competitive rates and very suitable quality in all kinds of weather conditions



### Application:

Cold emulsion asphalt and asphalt staining in road construction industry

## ► Cationic Emulsifier for Bitumen

◆ Paydar Shimi Ayrik Co.



### Product Introduction:

Bitumen is used as a binder in road construction. In the most common processes the bitumen is heated to 100 to 180°C until it reaches the required viscosity to mix with the aggregate.

Alternatively, the bitumen is diluted with petroleum solvents until fluid and the final strength of the material only develops when the solvent evaporates.

Bitumen emulsions provide an alternative approach in which the bitumen is liquefied by dispersing in water with emulsifiers. Emulsions can be used with cold and wet aggregates to achieve the ultimate strength (when the road material develops as the emulsions 'sets' and water is separated from it).

In many road construction applications emulsions provide a safer and more environmental friendly system than hot bitumen since the risks of fire, burns and emissions are avoided and the processes use less energy.

**Annual Production Capacity:**

1200 Tons

**Founded:**

2020

*This product is a final B2B consumer product.*

### Technical Specifications:

Cationic emulsifiers can be presented in three types:

- \* Quick setting (CQS)
- \* Rapid setting (CRS)
- \* Slow setting (CSS)

### Advantages:

- \* Easy to use due to the fluid nature of the material
- \* Can be produced in all emulsion plants
- \* Lower price than other competitors
- \* Very easy access



## ➤ UPVC Profiles by Co-Extrusion Method

♣ Jahan Profile Padir Co.

[www.hofmannprofile.com](http://www.hofmannprofile.com)

**HOFMANN**

### Product Introduction:

UPVC stands for Un-plasticized PolyVinyl Chloride, the hardened form of polyvinyl chloride, which is the main component of UPVC windows in the building industry. This material constitutes about 85% of the initial mixture of UPVC profile production. In addition to this substance, other additives are added to the composition to create the required properties, the absence of which or the change in the amount used in the formulation can greatly affect the final product. UPVC profile is a construction product that has replaced wood, iron and aluminum. Among the advantages of UPVC profiles can be mentioned the low maintenance cost and long life of energy optimization and its lower price. By maintaining the basic standards, this product has become more popular in construction in the past years.

**Annual Production Capacity:**

25,000 Tons

**Founded:**

2005

### Application:

Construction of doors and windows in different places

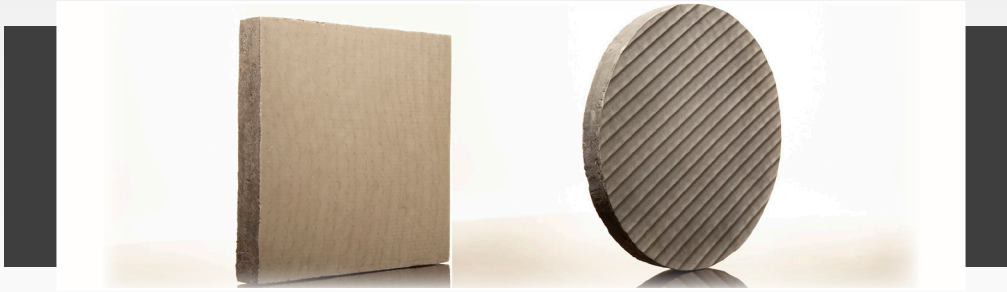
*This product is a final B2B and B2C consumer product.*

### Advantages:

- \* 25 years of quality guarantee
- \* Lower price than similar products

### International Standards or Permission:

- \* RAL GZ 716
- \* SKZ
- \* ISO 17025
- \* ISO 9001
- \* ISO 10002



## ➤ Composite Reinforced with 3D Fabric Woven with Glass Fiber and Filled with Mortar 3D Panels Filled with Concrete

♣ Sialk Industry Innovators Co.

[www.sialk-co.ir](http://www.sialk-co.ir)



### Product Introduction:

To make composite panels reinforced with 3D glass fabric, we weave glass thread with very high tensile strength in 3D. Then, with the help of resin (epoxy or polyester), this product is transformed into light, resistant, sound, heat, and moisture-insulating panels in different sizes and thicknesses. This product has a reasonable price and is used in roof and wall construction and some other cases. If the space between these plates' upper and lower layers is filled with cement mortar, some of their mechanical and thermal properties will be improved. The engagement of mortar with thousands of threads connecting the upper and lower plates of the composite panel, together with the high level of contact with these threads and the upper and lower plates of the panel, dramatically improves the flexural and compressive strength of these plates. Also, the time-dependent deformation of these hybrid composites is significantly reduced with the presence of mortar. The impossibility of airflow between the two layers and the lack of sufficient oxygen, along with a sharp increase in the ignition temperature, ultimately reduces the speed of the flame to zero.

**Annual Production Capacity:**

100,000 m<sup>2</sup>

**Founded:**

2013

### Application:

- ※ building industry
- ※ Transportation industry
- ※ Water and sewage, oil and petrochemical industry
- ※ Conex, cabins and composite shelters
- ※ Structures and their strengthening
- ※ Industrial greenhouses
- ※ Construction and urban facilities
- ※ Protection of concrete walls and ...

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Dimensions</b>	<ul style="list-style-type: none"> <li>※ <b>Width:</b> up to 400 (cm)</li> <li>※ <b>Length:</b> Unlimited</li> <li>※ <b>Thickness:</b> 20 to 32 (mm)</li> </ul>
<b>Weight (kg/m<sup>2</sup>) (For fabric density of 3 and thickness of 27 mm)</b>	<ul style="list-style-type: none"> <li>※ <b>Heavy cement:</b> ~ 45,60</li> <li>※ <b>Cement foam:</b> ~ 22,60</li> </ul>
<b>Flexural strength (deflection) for 30 mm thickness</b>	<ul style="list-style-type: none"> <li>※ <b>Width unit:</b> 400 kg.m/m</li> <li>※ <b>Flexural tension:</b> 20 MPa</li> <li>※ <b>Fiberglass:</b> 25 MPa</li> </ul>
<b>Color type</b>	<ul style="list-style-type: none"> <li>※ Grey/light grey or any other costume color</li> </ul>
<b>Average durability (year)</b>	<ul style="list-style-type: none"> <li>※ Unlimited</li> </ul>

### Advantages:

- ※ Wider panel than similar samples
- ※ Greater thickness of the panel compared to foreign samples
- ※ Lower price compared to foreign samples

### International Standards or Permission:

- ※ Confirmation of flammability and moisture percentage test: Laboratory of Razi Applied Sciences Foundation





## ➤ Epoxy Adhesive Anchor System for Threaded Rods and Reinforcing Bars in Concrete

◆ Abadgaran Construction Chemicals Co.

[www.abadgarangroup.net](http://www.abadgarangroup.net)



### Product Introduction:

Today, one of the most used solutions and positive developments in the implementation of concrete structures is believed to be the formulation and presentation of the method of planting rebars and bolts in structures. Planting rebar or bolt in hardened concrete includes a wide range of structural and non-structural connections, as well as reinforcement and strengthening of structures. Among the things that encourage engineers to apply this method in construction, we can mention the change in technical specifications and plans for the design and implementation of structures, change in use and exploitation conditions, relative ease of implementation, and the availability of materials and equipment of this method. Two-component epoxy adhesive is pasty, solvent-free and has high mechanical resistance.

This product does not flow and is suitable for installing different tapes and sheets on horizontal and vertical surfaces. It can also be used to plant steel and composite rods.

**Founded:**

1993

### Application:

- \* Planting rebar, anchor bolt, roll bolt, rod etc.
- \* Bonding metal sections to concrete, stone, brick
- \* Suitable for seismic retrofitting
- \* Suitable for retrofitting and strengthening of different sections
- \* Can be used in cracked and non-cracked concrete
- \* Connecting metal sections to concrete without restraint
- \* Installation and fixing of parts

*This product is a final B2B consumer product.*

### Technical Specifications:

Color	Smoky
Specific weight	0.05 ± 1.45 g/cm <sup>3</sup>
Compressive strength (after 7 days)	100 MPa
Adhesion strength (after 7 days)	13 MPa
Substrate temperature	10 to 45 °C
Service temperature	10 to 45 °C

### Advantages:

Lower price than similar products



**Application:**

- \* Suitable for covering gas transmission lines
- \* Suitable for covering the surface of building facilities
- \* Suitable for covering liquid storage tanks
- \* Suitable for covering the surface of boiler room facilities

➤ **Cement-Based Fire Resistant Coating**

◆ Behssazan Tosse Arman Co.

[www.betaenggroup.com](http://www.betaenggroup.com)



**Product Introduction:**

THERMOGAP fireproof coating is a product based on cement and vermiculite, which is designed to protect the metal frame of construction projects against fire. The materials used in this product such as cement, vermiculite, fiber (No asbestos) and some minerals and other additives have caused this product not only to have the strength properties of cement but also good interconnectedness due to containing fiber networks. No toxic smoke is emitted from this product during the fire and it will not break down when exposed to extremely hot air currents during the fire, and maintains its stable structure. After the fire is over, the metal surface's fireproof coating retains its strength and adhesion and does not need to be re-applied.

**Export History:**

Up to 500,000 \$

**Annual Production Capacity:**

11,000 Tons

**Founded:**

2002

*This product is a final B2B consumer product.*

**Technical Specifications:**

Test	Standard	Result	Unit
Reaction to fire	En 13501-1	A (A1 or A2)	-
Minimum stickiness	ASTM E736	Greater than 120	kPa
Density	ASTM E 605	840	kg/m <sup>3</sup>
Thermal conductivity coefficient	ISIRI 7297	0.1783	W/(m.K)
Thermal resistance	ISIRI 7297	0.21	m <sup>2</sup> .K/W
pH	ISIRI 706-2	10.42	-

**Advantages:**

Lower price than similar products

**International Standards or Permission:**

- \* UL 263
- \* EN 13381-4



## ► Fireproof Spray Mortar Based on Vermiculite to Deal with Cellulose Fire

◆ Gilan Mica Co.

[www.gilanmica.com](http://www.gilanmica.com)



### Product Introduction:

Increasing the resistance of buildings against fire has always been the desire of civil engineers. During a fire, the essential factor that exposes the building to collapse is the sharp increase in the temperature of the building's columns. Our introduced product is a mineral coating (cement based) that can be used to resist fire. A cellulose fire is equivalent to a fire in residential and commercial environments. It has a lower rate of expansion and temperature increase than a hydrocarbon fire, and it also imposes less mechanical pressure on the structure's surface. Confronting mechanism of this coating is passive. This coating has very low thermal conductivity and is not flammable. In this way, it protects the underlying fire area and prohibits uncontrolled temperature increase.

**Founded:**

1987

### Application:

As heat/sound insulation and fireproofing in construction, oil and gas, petrochemical and fireproof industries

*This product is a final B2B consumer product.*

### Technical Specifications:

- ※ In the formulation of this fireproof mineral coating, cement is added, and if the product is used indoors, it can also be combined with plaster binders.
- ※ To improve the consistency of the coating, there are some fibers in its formulation; for this purpose, cellulose and sometimes polymer fibers are used.
- ※ This formulation's components are rheological improvers (specifically, we can name Tylose as a thickener), foaming agents, fibers, binders, vermiculite, perlite, and concrete additives.



## ► Fireproof Spray Mortar Based on Cement to Deal with Cellulose Fire

◆ Navid Rang Pedram Co.

[www.pedramgrp.com](http://www.pedramgrp.com)



### Product Introduction:

When fire spreads, the most significant factor that can cause the building to be collapsed is the rapid increase in the columns' temperature. By increasing the area temperature of these columns beyond the softening point temperature of steel (near 600 °C), the resistance of steel parts breaks on the one hand, and the water content of reinforced concrete elements of the columns decreases and therefore fractures appear in the columns and make them very vulnerable on the other. That's why many different ideas have developed to increase the resistance of structures against fire; one of them is using fireproof cement lining systems. Our introduced product is a mineral coating (cement based) that can be used to resist fire. Confronting mechanism of this coating is passive. This coating has very low thermal conductivity and is not flammable. In this way, it protects the underlying fire area and prohibits uncontrolled temperature increase.

**Founded:**

2000

### Application:

Increasing the resistance of steel and concrete structures during fire

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* Formulation based on vermiculite and cement
- \* Durable and suitable for non-ventilated areas such as parking lots, elevator shafts, etc
- \* Up to 4 hours of fire resistance

### Advantages:

- \* Lower price compared to similar products
- \* Free of mineral wool and airborne fibers
- \* Free of toxic and antifungal compounds
- \* Asbestos free under OSHA and EPA regulations



➤ **Spray Applied Fire Resistive Mortar Based on Cement**  
Trade Name: Abtifire C-45

◆ Abtik Poushesh Aria Co.

[www.abtik.ir](http://www.abtik.ir)



**Product Introduction:**

Preventing the temperature of the material under protection from rising in order to maintain its stability is the most important principle in fire protection. In simple terms, fire protection measures help us evacuate the building and extinguish the fire as soon as possible. All elements of metal structures have some inherent resistance against fire. This amount of resistance is a function of the shape, surface, number of faces against fire and load capacity of the element.

Fire resistance is evaluated using standard test methods such as BS476 part 20 or ISO 834. These tests are conducted in a standard furnace with controlled fire intensity and temperature increase. The compressive resistance of steel decreases in the face of heat, and when it passes a certain temperature, this resistance is reduced by half, which can cause the building to collapse. The inherent resistance of steel beams in small profiles and under load is about 12 minutes, And this time for profiles with very large structural dimensions and with low load reaches 50 minutes at most.

The inherent resistance time of these materials against fire is not enough for the

**Annual Production Capacity:**

8,000 Tons

**Founded:**

2000

conditions required for a structure, and therefore more protective measures are needed. This resistance is generally provided by using fire-resistant coatings that are applied as an insulating layer on the metal frame.

The protective coating of metal structures against fire is a one-component, cement-based product designed to protect metal structures against cellulose fire. This coating can be applied in residential, commercial, office buildings and hotels and hospitals. This coating has a low density and has very good physical, mechanical and chemical properties. This product is non-flammable during application and after drying and is completely free of asbestos.

**Application:**

- \* Fire resistant coating to strengthen the metal framework of buildings

*This product is a final B2B consumer product.*

**Technical Specifications:**

- \* The use of mineral materials available in Iran to optimize the insulation level of the fire-resistant coating

**International Standards or Permission:**

- \* Technical certificate of construction research center of Iran
- \* Fire department approval of Iran
- \* Efectis



## ► Fireproof Intumescent Paint

Trade Name: NAX FP

◆ Nano Axon Co.

[www.nanoaxon.com](http://www.nanoaxon.com)



### Product Introduction:

This is a one-component acrylic thin film intumescent coating. Independently approved for fire protection of structural steel exposed to Cellulosic Fire (CF). Can be used as mid coat or finish coat in atmospheric environments. Suitable on approved primers on carbon steel substrates.

Specially designed as a reactive fire protection system for steel constructions. Designed to protect for up to 180 minutes on a wide range of section beams, columns, and hollows.

Today, the use of fireproof coatings has increased to prevent irreparable damage caused by fire to various buildings and structures. This product is a water-soluble acrylic coating used to protect steel structures against cellulose fire.

It can also serve as an intermediate or final coating layer in enclosed environments directly on the steel structure. This product is suitable for open structures (Expose) that do not have separate covers or facades.

#### Export History:

Up to 500,000 \$

#### Main Export Destinations:

Iraq

#### Annual Production Capacity:

1,000 Tons

#### Founded:

2012

### Application:

Protection of metal structures against fire and suitable for beams and columns and roofs of office and commercial buildings, petrochemical tanks, sheds and cable trays.

*This product is a final B2B consumer product.*

### Technical Specifications:

Solids by volume	65 ± 5%
Density	1.37 ± 0.05 gr/cm <sup>3</sup>
Viscosity	2500 Poise
pH	4 to 5
VOC	3 to 4%
Flash Point	Non-Flammable
Storage Temp.	10 to 45°C
Shelf Life	6 months (at 25°C)
Package	22-kg containers
Color	White

### Advantages:

- \* High resistance to fire for up to 3 hours
- \* Environmentally friendly
- \* High chemical resistance
- \* Experience of service in different climates

### International Standards or Permission:

- \* Certificate of Road, Housing and Urban development (BHRC)
- \* BS EN 13381-8:2013, BS EN 1363-1:1999 standards
- \* Test report from Efectis Era



## ➤ Intumescent Fireproof Coating

◆ Fateh Danesh Sorna Part Shimi Co.



### Product Introduction:

The intumescent fire retardant coating is an intumescent polymer coating used for fireproofing metal and concrete building structures and marine metal and composite structures. The base resin used in this composition is based on polyurethane and has been used as a binder due to its good heat resistance and good adhesion to the surface. It has been selected from various resins such as polyester, short coconut alkyd resin, and other resins. This product swells during contact with the flame, delays the spreading of the flame on the surface by releasing water during swelling, and keeps the surface healthy. It doesn't have environmentally destructive halogen materials and has proper adhesion to the surface. Among its other features, we can mention appropriate adhesion to the surface, impact resistance, and not creating a lot of smoke or toxic gases.

### Annual Production Capacity:

250 Tons

### Founded:

2011

### Application:

Protecting the body of ships, marine vessels, buildings and other industrial structures against fire

*This product is a final B2B consumer product.*

### Technical Specifications:

When this coating is applied on the surface, it is mixed with isocyanate hardener in proportion (coating to hardener 4:1) and applied on the surface.

### Advantages:

- \* Very favorable swelling quality and fire protection
- \* Lower price than similar products

### International Standards or Permission:

- \* ASTM D1475
- \* ASTM D440
- \* ASTM D3363
- \* ISO 5660-1
- \* ISO 5658-2
- \* ASTM D3363
- \* ASTM D2794
- \* ISO 4287
- \* ASTM G154
- \* UL 94 (V0-V1-V2 Classes)



## ➤ Fireproof Spray Mortar Based on Vermiculite to Deal with Cellulose Fire

🏠 Parsian Oil and Water Sustainable Industries Engineering and Trading Group



### Product Introduction:

Fireproof spray mortar based on vermiculite is a mineral coating (cement based) that can be used to resist fire. A cellulose fire is a fire that occurs in residential and commercial environments. It has a lower rate of expansion and temperature increase than a hydrocarbon fire, and it also imposes less mechanical pressure on the structure's surface. Confronting mechanism of this coating is passive. This coating has very low thermal conductivity and is not flammable. In this way, it protects the underlying fire area and prohibits uncontrolled temperature increase.

**Annual Production Capacity:**

2,500 Tons

**Founded:**

2015

### Application:

In order to deal with cellulose fire and prevent the spread, ignition and temperature increase in metal framework (office, residential and commercial buildings) and hydrocarbon fires (petrochemical, warehouse, etc.)

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* The number of components of this formulation is more than 7 components.
- \* The formulation is not very sensitive to the amount of components.
- \* Little importance of precedents of adding components
- \* The expected features of this product, which is fire resistance, are mainly present in its components.

### Advantages:

- \* High quality, as a result of which less spraying thickness is required.
- \* Lower specific weight and as a result less dead load (static load) is imposed on the structure.

### International Standards or Permission:

- \* **NEFCO MD:** Tested and approved in the Housing and Urban Development Research Center and the French company Efectis
- \* Approved in the fire department list of Iran





## ► Fire Retardant Sheath and Coating for Cables and Metal Structures

◆ Kimia Mehrzad Innovators Co.

[www.kimiamehraz.ir](http://www.kimiamehraz.ir)



### Product Introduction:

PerliFire K-20 fire retardant coating is one of the intumescent insulators that can be used on various surfaces, especially high-voltage electrical cables and building structures to prevent the spread of fire in the event of fire and to protect the coated surfaces.

In regard to passive fire protection of building structure and industrial firestop applications, we are proud to produce a mineral-based & Eco-friendly product called PERLIFIRETM as a fire-retardant coating.

PERLIFIRE K-20TM is a coating to protect electrical cables and Facilities in the event of fire.

Also, due to the water base of this product, it is not limited to use in certain places, such as hospitals and sensitive centers. Reinforcing the equipment with Fire-retardant coating, prevents the fire from spreading during the fire and saves human lives and facilitates rescue operations. These are important goals in industry and safety law and firefighting.

**Annual Production Capacity:**

45,000 Tons

**Founded:**

2019

### Application:

- \* Manufacturing industries such as steel companies, petrochemical companies, etc
- \* Residential buildings
- \* Hospitals
- \* Power distribution center
- \* Power plants
- \* Warehouses
- \* Public transportation
- \* Cement factories

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Colour</b>	Red
<b>Consumption rate</b>	3.4 kg/ m <sup>2</sup> with a thickness of 3 mm
<b>Package storage time</b>	18 months
<b>Storage conditions</b>	From 5 to 60 degrees Celsius
<b>Product life</b>	Based on environmental conditions and mechanical stress

### Advantages:

- \* Use of Eco-friendly raw materials
- \* Quick application of the product
- \* Long life
- \* Minimizing financial and human losses in industries
- \* Use of mineral-based raw materials
- \* Centralized technical and scientific support
- \* Lower price than similar products

**International Standards or Permission:**

IEC 60332



## ➤ Cementitious Fireproof Coating Containing Nanoparticles

◆ Bartar Farma High-Tech Engineering Co.



### Product Introduction:

Buildings' protection against fire, especially their skeleton and structure, which are usually metallic, is essential. Fire-resistive coatings provide such protection. The introduced product is a mineral cementitious coating containing fire resistive nanomaterials, which can be used for all metallic elements in residential, office, commercial and industrial structures against fire. Mineral spray fire resistive coatings are based on refractory minerals and contain expanded materials such as vermiculite as well as materials such as plaster and cement, foaming, materials, etc. Due to its high thermal resistance and low thermal conductivity, the coating of fire-resistant mineral spray materials reduces the process of heat transfer in the structure. It causes a delay in the collapse of the structure against fire, which can make the fire resistive coating based on mineral spray materials very efficient in dealing with the fire and provides enough time to extinguish the fire by the firefighters.

**Annual Production Capacity:**

250 Tons

**Founded:**

2018

### Application:

Protection of structures against fire

*This product is a final B2B consumer product.*

### Technical Specifications:

The use of nanometer components to improve fireproof properties and reduce the thickness of the desired coating to delay reaching the bending temperature and, as a result, make the structure lighter without losing efficiency and safety.

### Advantages:

- \* Optimal mechanical properties
- \* Adequate adhesion
- \* High resistance to fire
- \* Creating an extraordinary thermal delay
- \* Not creating any smoke or toxic gases

### International Standards or Permission:

- \* Technical certificate from "Road, Housing and Urban Development Research Center" and Iran Fire Organization
- \* Has approval from reliable domestic and foreign laboratories, including the Efectis Era laboratory
- \* Nanoscale certificate from the "Iran Nanotechnology Innovation Council" based on valid international standards



### Application:

Laying bricks, creating a neutral layer between each type of brick, prevention of corrosion and slag attack and...

## ➤ Ready-to-Use Refractory Mortar

📍 Dana Pishro Iranian Refractory Co.

[www.danaref.com](http://www.danaref.com)



### Product Introduction:

Refractory mortar is a type of mortar that is used as a binder for laying refractory bricks in various industrial furnaces. Refractory mortar is generally produced and supplied in two forms: hydraulic setting and air-drying. In hydraulic setting mortar, first a weak bond is established between the bricks and then it is replaced by ceramic bond due to heat effect.

In air-drying mortar, first a relatively strong bond is formed between the bricks in proportion to the type of bonding material, and subsequently, under the effect of heat, this bond is broken and replaced by a ceramic bond. One of the types of binding materials in the production of air-drying mortar is neutral sodium silicate. By increasing the amount of liquid sodium silicate in the solution, on the one hand, the bond strength between the bricks after drying is increased, and on the other hand, it reduces the refractory quality of the mortar.

**Founded:**

2019

*This product is a final B2B consumer product.*

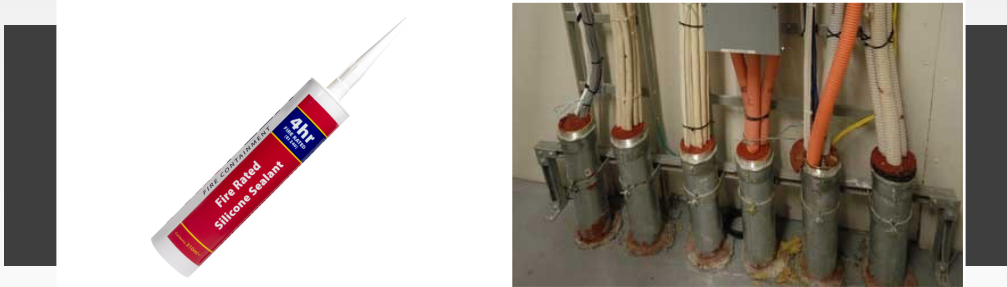
### Technical Specifications:

#### Consists of:

- \* Refractory soil (bauxite, chamotte, andalusite)
- \* China clay (kaolin)
- \* Ball clay
- \* Alumina (Alpha)
- \* Three types of organic and inorganic binders

#### Advantages:

Reasonable price and high quality



### Application:

Sealing around pipes and making repairs in places where high temperature resistance is required.

## ➤ Fireproof Sealing Paste

◆ Dana Pishro Iranian Refractory Co.

[www.danaref.com](http://www.danaref.com)



### Product Introduction:

Refractory sealing paste is a paste mixture whose fibrous nature leads to the creation of a layer with a low coefficient of thermal expansion and thermal conductivity and high shock resistance; On the other hand, using proper binders creates a hard surface after installation and drying. This product can be used in different thicknesses on the inner wall of the furnace, on metal shell, heavy and light brick, light and heavy mass, module, board, z-block. Also, this product is used in hot and cold furnace repairs to seal and fill cracks and holes caused by chunks falling off the furnace wall and light and heavy bricks.

**Founded:**

2019

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* **Consists of:** Ceramic fibers, minerals, organic and inorganic binders
- \* **Heat tolerance:** 1200°C

### Advantages:

Reasonable price and high quality



## ➤ Mortar Resistant to 98% Sulfuric Acid

◆ Zarfam Polymer Co.

[www.zarfampolymer.com](http://www.zarfampolymer.com)



### Product Introduction:

It is a covering and bonding mortar based on novalac epoxy resin and aromatic and adduct Hardener. Its high chemical resistance has caused it to be used to protect structures against the chemical corrosion of acids and alkalis, salts, seawater, petroleum, oily substances, etc. Anti-acid mortar has high adhesion to metal and concrete surfaces and has very high compressive and erosion resistance.

#### Main Export Destinations:

Russia, Turkey, Oman, Qatar, United Arab Emirates, Iraq, Syria

#### Annual Production Capacity:

200 Tons

#### Founded:

2019

### Application:

- \* Replace acid-resistant tiles and bricks
- \* Anti-acid and alkali flooring for areas where there is machinery traffic
- \* Use as a binding mortar and adhesive for the implementation of anti-acid tiles and bricks

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Physical state</b>	* <b>Component A:</b> Doughy * <b>Component B:</b> Liquid
<b>Solid percentage</b>	100%
<b>Fresh mixture density</b>	2.1 gr/cm <sup>3</sup>
<b>User time</b>	at a temperature of 20°C for 60 minutes
<b>Setting time (20°C)</b>	* <b>Primary time:</b> 60 min * <b>Secondary time:</b> 7 days
<b>Adhesion strength according to ISO4624 standard</b>	* <b>To concrete:</b> more than 2 MPa * <b>To metal:</b> more than 10 MPa
<b>Thermal resistance</b>	up to 120 °C

### Advantages:

- \* Easy implementation
- \* Lower price than similar products
- \* Very high coverage

### International Standards or Permission:

- \* ASTM D417 -16
- \* ISIRI 14497



## ➤ Water-Based Acrylic Coating Used as Thermal Insulation Trade Name: NAX 300

◆ Nano Axon Co.

[www.nanoaxon.com](http://www.nanoaxon.com)



### Product Introduction:

NAX-300 is a water based high performance copolymer acrylic liquid applied thermal insulation and energy saving paint/coating that is applied on most interior and exterior wall surfaces.

NAX-300 thermal insulation paint is produced from a water-based acrylic copolymer, according to nano technology, which becomes completely resistant to moisture after drying.

After applying the first layer, this product becomes an elastic surface that is very resistant to contraction, expansion and temperature changes. In addition to thermal insulation, it exhibits good resistance to sound, chemical agents and ultraviolet rays.

#### Export History:

Up to 500,000 \$

#### Main Export Destinations:

Iraq

#### Annual Production Capacity:

500 Tons

#### Founded:

2012

### Application:

Areas designated for application of NAX300- are metal roofs (to repel gases that cause wear or rust), pre-conditioning cell duct systems (to stop condensation and retain heat) and post-cell duct systems (for waterproofing the duct system by retarding the expulsion of gases).

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Solid content</b>	50 ± 5%
<b>Density</b>	0.54 ± 0.05 gr/cm <sup>3</sup>
<b>Viscosity</b>	30,000 to 32,000 Poise
<b>pH</b>	7-8
<b>VOC</b>	-
<b>Flash point</b>	Non-Flammable
<b>Storing temp.</b>	10 to 45°C
<b>Shelf Life</b>	6 months
<b>Package</b>	18 Lit
<b>Color</b>	White

### Advantages:

- \* Creating a special feature in the product formulation
- \* Customization



### Application:

Thermal insulation coating for strengthening steel and concrete structures (building) against fire

## ► Thermal Insulation Coating Based on Cement

◆ Abnoos Poushesh Parsian Co.

[www.abnoosgroup.com](http://www.abnoosgroup.com)



### Product Introduction:

Tutis is a perlite and cement-based fire resistive material with a light density of  $353 \text{ kg/m}^3$ . The product is free of asbestos, fibreglass and airborne fibers and therefore is completely environmental friendly. The product is usually used to protect the steel structure in the event of fire to create a strong fire insulation for up to 4 hours.

This product is produced as a solid powder mixture and is mixed with water in a certain ratio and applied in the form of mortar which is applied by spraying machines (shotcrete) on steel structures.

When the product is cured (with different thicknesses depending on the structure), the coating resists moisture, frost, light, heat and cold and fully retains its mechanical properties in both indoor and outdoor spaces.

**Annual Production Capacity:**

6,000 Tons

**Founded:**

2014

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* The adhesion and cohesion feature of the product is three times more than the ASTM E736 standard. Therefore, mortar can be sprayed on the ceilings or negative slopes without any shrinkage or separation.
- \* The product is non-flammable.
- \* The product is resistant to fungi, mold and bacteria.
- \* The product has air erosion and corrosion standards.
- \* The product powder can be stored and consumed for up to one year.

### Advantages:

- \* Has superior properties and quality than foreign products (imported)
- \* Using waste products of other industries and helping the environment
- \* The product is affordable compared to other market products.

### International Standards or Permission:

- \* EN standard
- \* Approval of Ministry of Road and Urban Development (Research Center) of Iran



## ► Silica Aerogel Insulator Board

◆ Pakan Atieh Nano Danesh Co.

[www.irogel.com](http://www.irogel.com)



### Product Introduction:

Aerogel insulation products with the unique innovation are a suitable solution to tackle the most difficult thermal and cooling challenges of various industries. Aerogel blankets are very suitable for use and installation on flat surfaces, although they are flexible and can be used on curved surfaces. The super-hydrophobic quality of these blankets makes them have a very long lifespan in working conditions, because the round-the-clock condensation of moisture of the environment and chemicals have no effect on reducing their efficiency. These blankets are completely waterproof for use at high temperatures and can be cut into any shape and curve.

The flatness of this type of aerogel makes it very easy to use in the construction industry, and these insulators can be fixed on all kinds of surfaces. These plates, while having excellent thermal, acoustic and moisture efficiency, are very light and do not create significant weight and volume in the structure. These aerogel insulators do not absorb and transfer heat and it makes them appropriate candidates for use in the roof of smelting and casting industries.

### Main Export Destinations:

Russia, Europe, Turkey and Arab countries

### Founded:

2016

### Application:

As heat, sound and moisture insulation in the construction industry

*This product is a final B2B consumer product.*

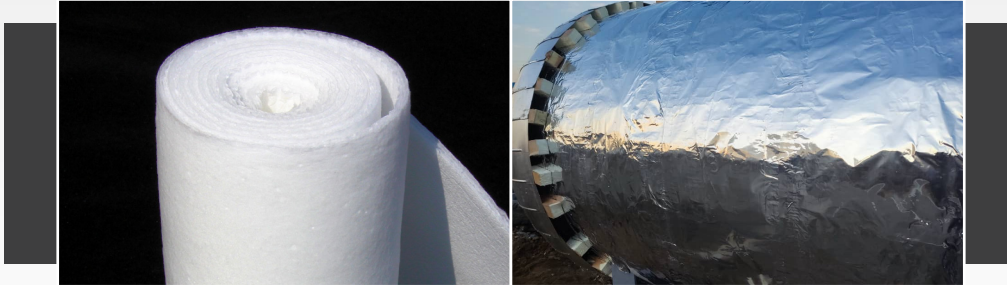
### Technical Specifications:

Conductivity Coefficient	0.017 W/mK
Apparent Density	160 kg/m <sup>3</sup>
Thermal Conductivity Coefficient	0.021 W/m.k
Thermal Resistance Coefficient	0.69 m <sup>2</sup> .k/W

### Advantages:

Lower price than similar products





## ➤ Flexible Aerogel Blanket

◆ Pakan Atieh Nano Danesh Co.

[www.irogel.com](http://www.irogel.com)



### Product Introduction:

IRogel insulation products with the unique innovation used in their production are a suitable solution to solve the most difficult thermal and cooling challenges of various industries.

The very low heat transfer coefficient, high lifespan and retention of the initial efficiency of the insulation after installation has caused the IRogel insulation to be much more energy-saving than traditional insulation.

Flexibility and sectility, along with high mechanical resistance, enables us to cover all surfaces with different geometries with the best quality and accuracy. Nanoporous IRogel have unique properties that can be used in various industries such as refineries, petrochemicals, buildings, metallurgy, chemical and power plants to reduce energy consumption and emissions. The many benefits of IRogel in the long run reduce the huge costs of the industry and eliminate environmental problems, waste disposal and the production of pollutants.

### Main Export Destinations:

Russia, Europe, Turkey and Arab countries

### Annual Production Capacity:

10,000 m<sup>2</sup>

### Founded:

2016

### Application:

As heat, sound and moisture insulation in the construction industry

*This product is a final B2B consumer product.*

### Technical Specifications:

Thermal conductivity coefficient	0.221 W/mK
Specific surface area	308 to 480 m <sup>2</sup> /g
Porosity volume	3.3 to 4.4 cm <sup>3</sup> /g
Granule density	0.08 to 0.1 g/cm <sup>3</sup>
Contact angle	100 to 140
Average pore size	20 to 47 nm

### Advantages:

Lower price than similar products

### International Standards or Permission:

ASTM C177, ASTM C447, ASTM D1728, ASTM C411, ASTM C592, ASTM C167, ASTM C165, ASTM C1101, ASTM C 356



*This product is a final B2B consumer product.*

## ➤ NIRA Thermal Nano-Insulation

◆ Pavan Water Base Protective Covers Group (Pampabaam)

[www.pampabaam.com](http://www.pampabaam.com)



### Product Introduction:

Nano-liquid thermal insulation is the new generation of thermal insulation which replaces traditional insulations (glass wools) and foams.

With the help of nanotechnology, while meeting environmental issues, these products provide thermal insulation along with moisture resistance and prevent mold and fungus growth. Thermal insulation nano paints use different mechanisms for insulation. These colors are mainly based on blue-based acrylic resin, in which nanoparticles based on silica aerogel, the most insulating material in the world, have been used. Nano-insulating paint has excellent resistance against heat and cold; it has stability against atmospheric factors and UV rays of the sun, and it can be used as a single component without solvent. In addition, they can be applied on different surfaces using easy and quick methods such as airless spray, roller, and brush.

### Application:

- \* Isolation thermal equipment and systems including: boilers, oil tanks, steam pipelines, hot water and fluids, under pressure water valves, heat exchangers, boilers, two-shells sources, expansion sources, gas cooler tank pipes and facilities of buildings and power plants
- \* Silos and food storage, poultry farms and cattle farms
- \* Air conditioning devices, channels, chillers and cold water lines, air ventilation channels, refrigeration tanks
- \* Suitable for surfaces with a temperature lower than 260°C
- \* Corrosion protection of surfaces by applying a thin layer

**Annual Production Capacity:**

150 Tons

**Founded:**

2015

### Technical Specifications:

Density	70.0 m3/kg
Elasticity percentage	> 30%
Moisture resistance	> 1000 hrs
Atmospheric and radiation resistance, uv Quv	> 1000 hrs
Resistance to the growth of fungus and mold	0
Water vapor permeability	Low
flexibility	Min 1/2 pass
Acid resistance	Low
Thermal conductivity	0.013 ± 0.005
Cohesion	5B

### Advantages:

- \* Beauty and cleanliness of the work environment with the ability to be painted
- \* High and easy execution speed, repairable, applicable on surfaces with different geometric shapes
- \* Impossibility of growth of fungi and bacteria
- \* Do not cause allergies and respiratory problems for the performer
- \* Integrated and seamless, without the need for glue and other materials during execution
- \* Light with low thickness and the possibility of changing the thickness, in proportion to the desired fluid temperature
- \* Excellent adhesion to metal and cement surfaces
- \* Radiation resistant UV and atmospheric factors
- \* High flexibility, resistant to temperature fluctuations and shocks, contraction, expansion
- \* Low heat transfer coefficient
- \* Reducing material loss through evaporation and expansion
- \* Reduce heat absorption in summer and heat loss in winter
- \* Preventing energy loss in industries
- \* Closed cell structure with low water absorption and high resistance to moisture penetration

### International Standards or Permission:

- \* heat transfer capacity ASTM E1269
- \* Thermal conductivity coefficient ASTM E1461
- \* Water vapor permeability ASTM E96
- \* Chemical resistance ASTM D543



### Application:

- \* Can be used on metal, cement, concrete surfaces, plaster and cement blocks, bricks, plaster and cement plates.
- \* Can be used in livestock and poultry sheds to reduce cooling and heating costs
- \* Due to its excellent thermal resistance, using it near electrical wires and connections provides sufficient safety

## ➤ Sound and Heat Insulation Based on Acrylic Resin

◆ Sefid Bam Keranian Co.

[www.sefidbam.ir](http://www.sefidbam.ir)



### Product Introduction:

Spray Light Mix is one of the unique methods for thermal insulation and sound insulation in the building. This product is produced based on polymer resins and porous micron grains and using nano compounds for thermal insulation of the outer shell of the building. One of the acute problems that plagues the apartment life of today's society is the noise from the neighboring units that deprives the residents of their comfort. The best solution is to use Light Mix sound insulation, by which we can easily get rid of these problems. Sound insulation Light Mix is ready-made mortar ready to be used on all types of walls and ceilings of the house. This product is not only sound insulation but also thermal insulation and prevents energy loss in the building.

**Annual Production Capacity:**

1,400 Tons

**Founded:**

2008

*This product is a final B2B consumer product.*

### Technical Specifications:

Physical state	Doughy
Colour	White
pH	7 ± 5
Specific weight	86 ± 1
Solid content	3%

### Advantages:

- \* Fire proof
- \* Eco-friendly
- \* Light and has excellent adhesion to all surfaces



## ➤ Composite Thermal and Sound Insulation Based on Ceramic and Polyamide Fibers

📍 Kenor Asia Co.

[www.kenorasia.ir](http://www.kenorasia.ir)



### Product Introduction:

Composite thermal and sound insulation based on ceramic and polyamide fibers has been introduced as an alternative to multilayer insulation made of steel and glass wool or stone wool. Currently, a large part of the equipment is covered using similar imported insulation, and some use traditional insulation such as glass wool. This product can also be used to protect against fire and delay the bending of main metal columns. In fact, the intended insulation is a hybrid product of carbon, Kevlar and ceramic fibers, which are covered by a silicone coating depending on the application and the geographical area in order to prevent the penetration of moisture. The number of layers and the type of fibers used also depends on the type of equipment, geographical region, and the desired efficiency and effectiveness for sound and thermal insulation.

**Annual Production Capacity:**

1,400 Tons

**Founded:**

2008

### Application:

Insulation of devices with complex and common geometric shapes

*This product is a final B2B consumer product.*

### Technical Specifications:

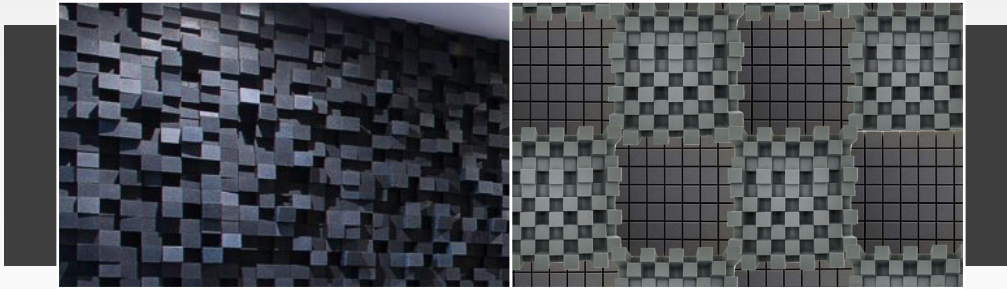
- \* This insulation model is waterproof and oil-proof
- \* Reusability and ease of installation and assembly of designed insulations
- \* Lightness and flexible
- \* High resistance to thermal shocks
- \* Non-flammability of all materials used in this product
- \* Design ability for continuous work at a temperature of 200 to 1200 °C.
- \* Very low conductivity coefficient
- \* Absorption of sound pollution of industrial equipment, reduction of 30 decibels

### Advantages:

- \* Waterproof and oil-resistant insulation of this model
- \* Reusability and ease of installation and assembly of designed insulation.
- \* Lightness and flexibility of this insulation
- \* High resistance to heat shocks
- \* All materials used in this product are refractory
- \* The conductivity is very low

### International Standards or Permission:

Patent certificate from the Institute of Company Registration and Industrial Property of the Islamic Republic of Iran



## ➤ Slow-Burning Multi-Layer Acoustic Panel

◆ Mobtakeran Avaye Pad Co.



### Product Introduction:

Soundphix acoustic panel consists of several layers of polymer composites with acoustic properties. According to the user's need for special audio conditions, a unique design by Soundphix proprietary software is created based on 18 Iran's national regulations and international standards for the desired environment. This particular design specifies the characteristics of each panel layer. These characteristics include density, porosity, thickness and stiffness of each layer, which together can give special sound conditions to the environment. These layers are insulation and sound absorbing layers that meet the sound standards in environment. Soundphix acoustic panel, after design and construction, with the help of special tools, is installed in the required area on the wall and ceiling, and by eliminating excessive ambient sound and sound noise, gives the user an ideal acoustic condition.

**Annual Production Capacity:**

5,000 Panels

**Founded:**

2019

### Application:

- \* Environments where the background noise should be controlled and the walls should be insulated appropriately, such as the amphitheater, cinema, concert hall, meeting hall, educational spaces and laboratories, kindergarten, music, and dubbing studio.
- \* Environments that require specific and controlled reaction time, such as hotels, hospitals, doctor's offices, classrooms, residential homes, and children's rooms.

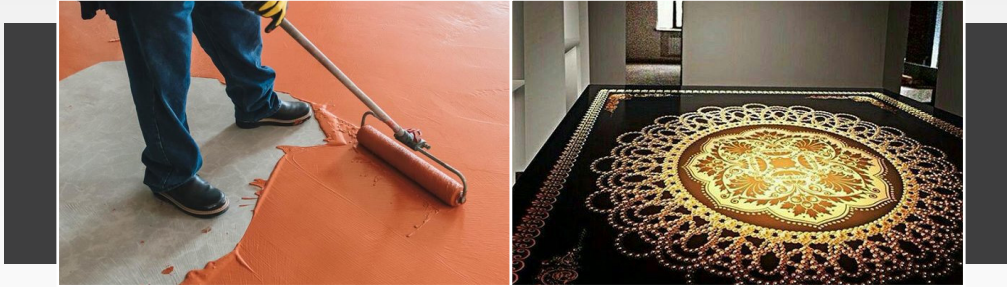
*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Dimensions</b>	variable
<b>No. Layers</b>	5 layers
<b>Layers' material</b>	<ul style="list-style-type: none"> <li>* <b>First layer:</b> fiberglass composite and vinyl acetate homopolymer</li> <li>* <b>Second layer:</b> a light modified foam</li> <li>* <b>Third layer:</b> basalt stone fibers</li> <li>* <b>Fourth layer:</b> a type of heavy modified foam</li> <li>* <b>Fifth layer:</b> polyvinyl chloride</li> </ul>
<b>Layers' thickness (mm)</b>	<ul style="list-style-type: none"> <li>* <b>First layer:</b> 2</li> <li>* <b>Second layer:</b> 15</li> <li>* <b>Third layer:</b> 50</li> <li>* <b>Fourth layer:</b> -</li> <li>* <b>Fifth layer:</b> 3</li> </ul>
<b>Absorption coefficient at frequencies higher than 315 Hz</b>	1
<b>Weighted sound absorption coefficient based on Iranian National Standard No. 8184</b>	1
<b>Average Sound Reduction Index (Sound Transmission Class (STC)) for different frequencies</b>	<ul style="list-style-type: none"> <li>* <b>With wall:</b> 47 dI</li> <li>* <b>No walls:</b> 4 dI</li> </ul>
<b>Heat transfer coefficient</b>	0.0367 w/mk
<b>Thermal resistance</b>	2.46 m <sup>2</sup> k/w

### Advantages:

Lower price than similar products



## ➤ Polymer Flooring Based on Modified Epoxy

◆ Mandana Polymer Innovators Engineering Co.

[www.mandanapolymer.com](http://www.mandanapolymer.com)



### Product Introduction:

Polymer floors based on polymer flooring are a new generation of flooring that are produced and supplied in industrial, commercial and domestic form. Due to the hygienic properties of this product, it is possible to use it on surfaces where, in addition to chemical resistance, the hygiene of the coating is also important. Polymer flooring based on modified epoxy consists of epoxy resin with a thickness of 0.5 to 5 mm and more, whose properties include high chemical resistance to solvents, acids, bases, salts, non-clogging, antibacterial, long life, high speed of operation, variety of colors and designs, insulation, easy cleaning, mechanical resistance and no cracking.

**Founded:**

2011

### Application:

- \* Epoxy flooring in commercial applications (3D-Flake-aklil-windy design)
- \* Epoxy flooring in heavy duty applications (factory-hospitals-sport flooring...)
- \* Epoxy stone floorings
- \* This flooring provides beauty, high resistance to pressure and impact, easy and fast washing.

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* Resistance to chemicals, acids and bases
- \* Electrical insulation
- \* Prevent leakage of water
- \* good resistance to water and humidity
- \* Reduce energy consumption and prevent energy loss
- \* Local fix ability
- \* Low sensitivity to ambient temperature during cooking
- \* Prevent the growth and proliferation of insects, bacteria, mould
- \* Resistant to temperature changes
- \* Excellent adhesion to surfaces

### Advantages:

- \* Lightness and integrity
- \* Variety of design, color and structure
- \* Good chemical and mechanical resistance compared to other traditional materials
- \* Creating added value by modifying the resin
- \* Reducing the weight of the structure

### International Standards or Permission:

- \* ISO 9001 standard
- \* ISO 14001 standard
- \* OHSAH 18001 standard
- \* Standard IMS Management system



## ➤ Mortar and Flooring

### Cement-Polymer Composite Roll for Quick Implementation

◆ Alyaf Tavanmand Sanati Esfahan Co.

#### Product Introduction:

Mortar flooring (mortar flooring) is one of the most widely used construction products and consists of a three-dimensional substrate containing a dry mixture based on cement. A hydrophilic coating on the product causes water to be drawn into the mixture during the preparation process. By adding water, the mortar floor becomes a hard, resistant, durable, waterproof and fireproof surface in a very short period of time.

The use of some special fibers and the use of a type of textile in the preparation of this product prevent cracking, increase energy absorption and high durability of the final product. Diversity in the textile layer and the use of dry mixture with wide characteristics has led to the achievement of the final product with very wide applications and specific to different geographical areas. Mortar flooring, as a modern technology, helps to save energy, increase the speed of construction and reduce costs in the implementation of construction projects and quick return on investment.

**Founded:**

2019

#### Application:

- ※ Use in the construction of emergency buildings such as field hospitals, trenches and shelters
- ※ Construction of temporary roads and helicopter landing sites
- ※ Covering rivers and water channels in the agricultural industry
- ※ Dam construction
- ※ Insulating surfaces against fire
- ※ Implementation of decorative buildings and...

*This product is a final B2B consumer product.*

#### Technical Specifications:

<b>Design and manufacture</b>	<ul style="list-style-type: none"> <li>※ Hydrophilic layer</li> <li>※ Hydrophobic layer</li> <li>※ Middle three-dimensional layer</li> </ul>
<b>Thickness</b>	5 to 20 mm
<b>Ductility and energy absorption</b>	3 to 9 times more than usual layers
<b>Initial setting</b>	Less than 1.5 hours

#### Advantages:

- ※ Possessing special concrete technology
- ※ Lower cost of product preparation than similar products



## ➤ Greaseproof Solution for Glass Surfaces Based on Silane-Siloxane

◆ Sharif Nanopad Co.

[www.nanopadsharif.com](http://www.nanopadsharif.com)



### Product Introduction:

These products contain modified alcohol-based hydrophobic silanes, which after spraying on different surfaces, establish a strong chemical bond through reaction with the hydroxyl groups of the glass surface and create a transparent and waterproof network on different surfaces. This product creates a robust waterproof coating by creating a reaction on the glass and causes the formation of an impenetrable membrane against leakage, thus making these surfaces hydrophobic. The product's waterproof feature is the size of the synthesized silica nanoparticles and the non-polar alkyl groups on the silica surface. Also, in addition to being waterproof, this product has good lipophobicity.

**Founded:**

2016

### Application:

- \* Preventing pollution on oven and kitchen hood surfaces
- \* Preventing contamination of the cellular surface

*This product is a final B2B consumer product.*

### Technical Specifications:

Coating creating temperature	Room temperature
pH	Acidic
Used solvent	Isopropanol
Nanoparticle size	68 nm
The durability of created coating	9-12 months

### Advantages:

Lower price than similar products





### ➤ Solution for Creating a Hydrophobic

Coating on Glass (TOOSEAL G), Wood (TOOSEAL W) and Refractory Bricks (TOOSEAL BF)

◆ Tous Nano Powder Study and Production Co.

[www.nanotoos.com](http://www.nanotoos.com)



#### Product Introduction:

Self-cleaning coatings are divided into two groups, hydrophilic and hydrophobic. Whether the surface is hydrophilic or hydrophobic depends on the contact angle of the water droplet with the surface. If this angle is greater than 90 degrees, the surface is called hydrophobic. Inspired by water lily leaves, humans have tried to make super-hydrophobic surfaces. In hydrophobic coatings, as soon as water comes in contact with the surface, it accumulates in the form of spherical droplets and slides over the surface, removing the pollution particles from the surface. The present products are produced with the same mechanism of action for waterproofing glass, wood and refractory brick surfaces.

- ※ **Tooseal G:** In addition to waterproofing the surface, this solution creates an extraordinary and durable resistance against corrosion, erosion and friction.
- ※ **Tooseal W:** This product makes the surface of wood and chipboard super-hydrophobic and makes it stable and long-lasting in moist and wet environments and increases its life several times.
- ※ **Tooseal BF:** This product prevents brick efflorescence and remains usable for up to one year in a closed container and balanced environmental conditions.

**Founded:**

2014

#### Application:

- ※ **TOOSEAL G:** Waterproofing of glass and creating self-cleaning properties in glass, double-glazed window, tempered glass, aquarium, glass bubble of street lights and cameras, shop windows, glass facade, bathtub, mirrors and glass bathrooms.
- ※ **TOOSEAL W:** Protection of wooden surfaces in wet and humid environments, increasing the lifespan of wooden structures, preventing chipboard and wood surfaces from swelling in humid environments, preventing the growth of algae, fungi, and being eaten by termites and vermin.
- ※ **TOOSEAL BF:** Waterproofing of firebricks used in building facades and preventing them from getting wet, efflorescence, and creating algae and moss on the surface.

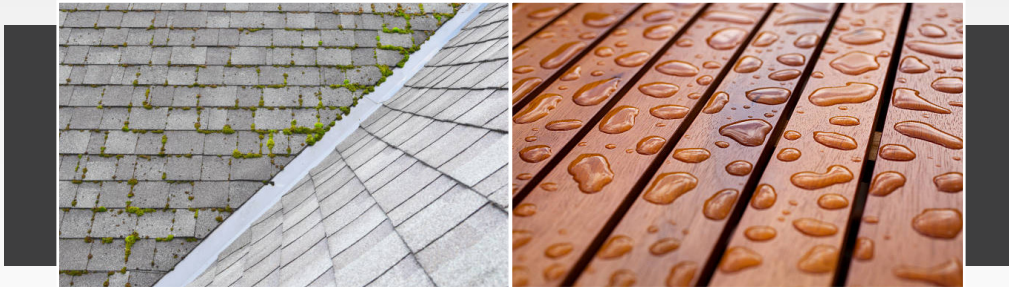
*This product is a final B2B consumer product.*

#### Technical Specifications:

<b>TOOSEAL G</b>	<ul style="list-style-type: none"> <li>※ One-component based on environmental friendly organic solvents</li> <li>※ Clear and free of toxic, smelly and harmful substances</li> <li>※ No opacity after applying on the glass</li> </ul>
<b>TOOSEAL W</b>	<ul style="list-style-type: none"> <li>※ One-component based on organic solvents and environmentally friendly silicate compounds</li> <li>※ Completely colorless and invisible on the product</li> </ul>
<b>TOOSEAL BF</b>	<ul style="list-style-type: none"> <li>※ One-component based on organic solvents and environmentally friendly silicate compounds</li> <li>※ Completely colorless and invisible on the product</li> </ul>

#### Advantages:

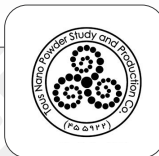
<b>TOOSEAL G</b>	<ul style="list-style-type: none"> <li>※ Eco-friendly</li> <li>※ Accurate and complete cleaning of surfaces from dirt, grease and oil particles</li> </ul>
<b>TOOSEAL W</b>	<ul style="list-style-type: none"> <li>※ Eco-friendly</li> <li>※ Increasing the lifespan of wooden parts</li> <li>※ Preventing the penetration of dirt and pollution deep into the wood and making the wood easy to clean</li> <li>※ Vast coverage</li> </ul>
<b>TOOSEAL BF</b>	<ul style="list-style-type: none"> <li>※ Very high stability and longevity</li> <li>※ Eco-friendly</li> <li>※ Creating quick and easy self-cleaning properties</li> </ul>



➤ **Two-Component Solution that Creates a Super-Hydrophobic Coating on Stone (SGW) and Brick (BO)**

◆ Tous Nano Powder Study and Production Co.

[www.nanotoos.com](http://www.nanotoos.com)



**Product Introduction:**

In this series of products, unlike the previous series where silica nanoparticles were formed on site, nanoparticles are created by mixing water with other components and only then nanoparticles are applied on the surface. The contact angle of the drop in this product is above 120 degrees.

- ※ **TOOSEAL SGW:** Stone is considered one of the most widely used construction materials, which has various applications in the construction of the body and facade of structures. Therefore, preventing the penetration of water into the stones has always been taken into consideration by companies active in the field of construction materials and various methods have been investigated and used for this purpose. This product carries out this task.
- ※ **TOOSEAL BO:** The facade of the building is one of the most important parts of the building. It is very difficult to maintain its beauty and cleanness due to lack of easy access. Many problems are caused by water absorption in the facade of the building; efflorescence of the facade of the building after rain and cracking and crushing of materials in the winter season are a case in point. The hydrophobic product prevents the aforementioned problems by preventing the brick from absorbing water.

**Founded:**

2014

**Application:**

- ※ Preventing pollution on oven and kitchen hood surfaces
- ※ Preventing contamination of the cellular surface

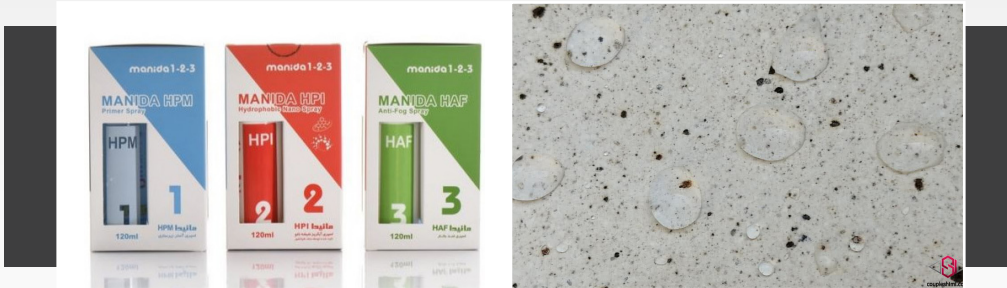
*This product is a final B2B consumer product.*

**Technical Specifications:**

<b>TOOSEAL SGW</b>	<ul style="list-style-type: none"> <li>※ Not changing the appearance of the stone Protection against ultraviolet rays</li> <li>※ Easy implementation, fast absorption</li> <li>※ Resistant to washing up to 60 bar pressure</li> <li>※ Completely colorless and odorless</li> <li>※ Protection against efflorescence, moss and fungus</li> <li>※ Suitable for all weather conditions</li> </ul>
<b>TOOSEAL BO</b>	<ul style="list-style-type: none"> <li>※ Two-component product based on water and silicate compounds</li> <li>※ Eco-friendly</li> <li>※ Completely colorless and invisible after applying on the stone</li> </ul>

**Advantages:**

<b>TOOSEAL SGW</b>	<ul style="list-style-type: none"> <li>※ No polymer materials and no flaking on the surface of the stone</li> <li>※ Easy implementation of the product and no need for special equipment</li> <li>※ Ability to cover 15 to 17 square meters of stone for each liter of product</li> </ul>
<b>TOOSEAL BO</b>	<ul style="list-style-type: none"> <li>※ Water as solvent</li> <li>※ Can be diluted up to 20 times in water</li> <li>※ Water repellency on the product lasts up to 5 years</li> </ul>



**Application:**

Hydrophobic materials are used in industry as grease cleaners (along with degreasers (material with lipophobicity)), oil-water separators, and to remove non-polar particles from polar surfaces.

➤ **Hydrophobic Solution for Non-Absorbent Surfaces**

🏠 Hooman Shimi Pars Co.



**Product Introduction:**

Hydrophobicity is one of the surface physical properties of a material. Due to their micrometer and nanometer surface roughness, hydrophobic materials do not allow water to spread or absorb on the surface and therefore cause water to drip and slide. This product is a type of hydrophobic solution with hydrophobic properties that can be used on non-absorbent surfaces, especially glass. After being sprayed on the glass, this product is entirely transparent and does not cause any opacity in the glass.

**Founded:**  
2015

*This product is a final B2B consumer product.*

**Advantages:**

- ※ The average contact angle is 104 degrees
- ※ Long shelf life

**International Standards or Permission:**  
ISIRI standards



## ➤ Hydrophobic, Waterproof and Anti-Stain Coating Based on Acrylic and Silicone Resins to Protect Building Materials | Trade Name: NFS-104

◆ Nano Faraz Sepahan Co.

[www.nanofaraz.com](http://www.nanofaraz.com)



### Product Introduction:

The base material of 104-NFS is a mixture of silicone resins. This product is resistant to dust and pollution. Therefore, the coated surface gets dirty slowly, and the particles and pollution on it can easily be cleaned with a simple wash. This coating makes the surface completely waterproof, and the effect of stains from substances such as tea, glue, paint, magic, etc., can be removed entirely from the surface. This product protects the surface of the walls from pollution and destruction against environmental factors and is also very economical due to its high durability. As a result of using the mentioned coating, the need for detergent compounds will be minimized, and as a result, it will reduce environmental pollution.

**Founded:**

2011

### Application:

Construction industries and construction structures, public places including schools and mosques, restaurants, ancient monuments, construction contractors and municipalities, and all companies which have energy consumption optimization policies

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Appearance</b>	Opaque silk
<b>Special Weight</b>	$1 \pm 0.05 \text{ g/cm}^3$
<b>Cover</b>	18 to 20 m <sup>2</sup>
<b>Surface Drying Time</b>	2 hrs
<b>Method of application</b>	Spray or brush

### Advantages:

- \* Good hydrophobic and waterproof properties
- \* Proper anti-stain and anti-writing properties
- \* Acceptable adhesion properties and durability
- \* Breathability properties of the surface after applying the coating
- \* Significant reduction of brick dandruff after applying the product

**International Standards or Permission:**

Provisional patent at the United States Patent and Trademark Office



### Application:

- \* Sealing and waterproofing cement surfaces and walls
- \* No penetration and passage of moisture in the foundation
- \* Reduction of reinforcement corrosion in concrete
- \* Reducing the humidity of the internal and external walls of the building
- \* Sealing the gap between tile and ceramic surfaces
- \* Repair and restoration of cement and concrete surfaces
- \* As a kenitex of the facade of the building with cleaning and anti-stain capabilities

## ➤ Super Hydrophobic Cement Mortar

◆ Sharif Nano Pars Co.

[www.sharifnanopars.com](http://www.sharifnanopars.com)



### Product Introduction:

Hydrophobic cement is a special kind of cement produced as a combination of ordinary Portland cement and aluminate cement, sodium, calcium, silica seeds, and other special additives distributed around the market. Cement hydrophobic mortars are used to decrease physical fractures and reduce water penetration into the cement. Reduction of water absorption causes reduction of damage caused by water penetration such as stains and white deposits, damage caused by heat and cold cycle, chemical corrosion, and corrosion of steel reinforcement in concrete. With the help of this mortar, the area doesn't get wet anymore, water contamination doesn't reach into the mortar, and the area remains clean. These hydrophobic cement areas can easily be cleaned by rain or clean water.

**Founded:**

2011

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* Prepared from a mixture of cement with carbonate powder and stone
- \* Use of functionalized silicate nanoparticles to make it super hydrophobic
- \* Suitable thickness for super waterproofing the surface around 2-3 mm

### Advantages:

- \* Lower price than similar products
- \* Higher corrosion resistance than similar products



## ➤ Super Waterproof Paint for Cement and Concrete Surfaces

◆ Jikan Nanostructure Paint and Coating Co.

[www.jikangroup.com](http://www.jikangroup.com)



### Product Introduction:

One of the problems of building facade paints is the surface pollution adsorbed on them, which requires washing with a water jet or changing the paint for cleaning. Water-repellent and waterproof paints partially solve these problems. The latest generation of these colors is super hydrophobic colors. The super-hydrophobicity of the surface means that the water droplets are placed in a spherical shape and do not penetrate the roughness; Therefore, they can easily roll on the surface. The scientific term for this phenomenon is Cassie-Baxter mode. By rolling on the surface, the water drops carry the dust with them, and the surface is cleaned by itself and with a bit of humidity in the environment.

Surfaces painted with Jicaler super-hydrophobic paint, produced by Jikan Nano Structure Company, are resistant to any dust and soot and are cleaned by themselves with the least amount of wind or water drops. In addition to repelling moisture, acid, and base, Gicaler paint protects the facade from absorbing dust and soot for at least five years, and extraordinarily, the facade remains as clean as the first day. It should be noted that this paint has all the properties of a high-quality facade paint (physical and chemical durability, resistance to ultraviolet rays) in addition to its super-hydrophobic properties.

**Founded:**

2020

### Application:

Can be used in urban and industrial cement, concrete and brick facades

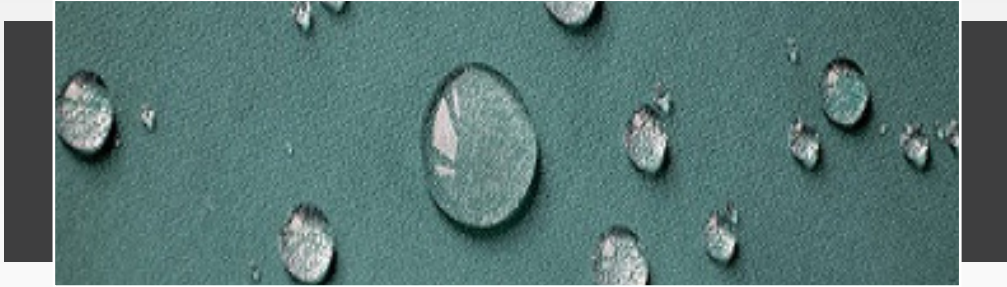
*This product is a final B2B consumer product.*

### Technical Specifications:

Special weight	1.09 gr/cm <sup>3</sup>
Softness of particles	50 micron
Drying time	20 minutes
Covering power of color wet crust	8.3 m <sup>2</sup> /L
Viscosity	74.4 krebs
Adhesion with cross cut	5B

### Advantages:

- \* Super hydrophobic
- \* Greater contact angle than similar products
- \* Lower cost than similar products



## ➤ Superhydrophobic Polyurethane Coating

◆ Maral Nano Coating Co.

[www.maralcoating.com](http://www.maralcoating.com)



### Product Introduction:

The most common measure of wetting behavior is the static contact angle. The static contact angle is the angle formed between liquid and solid in the region of the three-phase boundary. The size of this angle depends on several factors, including surface free energy, surface roughness, and surface cleanliness. If a drop of water makes a contact angle smaller than  $90^\circ$  with a solid surface, it will wet the surface, and that surface will be hydrophilic. If the size of this angle is within the range, the surface will not be wetted, and the surface will be hydrophobic. The contact angle of water on superhydrophobic surfaces is very high (more than  $150^\circ$ ), and the drop on them takes shape similar to a perfect sphere. Due to the low adhesion of the water drop to these surfaces, the drop easily rolls on them even on low slopes and cleans the surface pollution along with it.

Among the uses that these colors can have is in electricity distribution network lines. Concrete foundations are one of the most widely used components of the electricity distribution network, whose optimal structural performance is essential.

One of the factors of the unreliability of concrete is the inappropriate surrounding conditions, such as the presence of sulfates and salts around the concrete structure and corrosion of steel due to the penetration of harmful chemicals and moisture in steel concrete structures. Using ultra-hydrophobic coatings can solve this problem due to their accessible cleaning properties. Due to their super

#### Main Export Destinations:

The UAE, Oman, Qatar, Iraq, Turkey, Azerbaijan and Turkmenistan

#### Annual Production Capacity:

200 Tons

#### Founded:

2019

waterproof properties, these covers can be easily washed by rain or wind, preventing the accumulation of pollution on the surface and completely removing water from their surface. Polyurethane superhydrophobic coatings have superhydrophobic properties and have shown good weather resistance. Compared to commercial polyurethane coating, these coatings reduce water absorption to the surface by 80% and reduce the adhesion of moss and surface pollution.

### Application:

- ※ Electricity industry (prevention of concrete corrosion)
- ※ Fisheries (decreasing the adhesion of moss to fish ponds)
- ※ Agriculture (reducing water wastage in agricultural ponds)
- ※ Oil industry (preventing corrosion of oil tanks)

*This product is a final B2B consumer product.*

### Technical Specifications:

- ※ **Ingredients:** nano materials (nanosilica), hydrophobic materials, polyol resin, xylene solvents, acetone, isocyanate hardener.
- ※ **Final coating:**
  - First component: polyol, nano materials and solvent
  - Second component: isocyanate and solvent

### Advantages:

- ※ Lower price than similar products
- ※ Higher efficiency than similar products

### International Standards or Permission:

Nano Scale certification



## ➤ Polymer Waterproof Insulators with Powder-Liquid System

◆ Faraz Paye Alborz Co.

[www.farazpaye.com](http://www.farazpaye.com)



### Product Introduction:

MCI nano polymer insulator is a two-component waterproof insulator that can be used to isolate and seal different spaces of the building. This nano-polymer insulation can be used as an alternative to bituminous waterproofing (Isogam) and Tar paper (Qirguni). MCI nano polymer waterproofing consists of a powder component and a liquid component, which can be used to seal the roof, swimming pool, water tanks, and toilets after mixing the two ingredients. This product is applied as a semi-solid on the surfaces. After drying, it forms a flexible, 100% waterproof layer with very high adhesion to all types of concrete, steel, plaster, and construction materials (about 2 MPa). According to the studies, polymer-based waterproofing coatings have better flexibility and elasticity, longer life, and higher heat resistance than bitumen-based systems such as bituminous waterproofing (Isogam) and Tar paper (Qirguni).

**Annual Production Capacity:**

350 Tons

**Founded:**

2013

### Application:

- \* Roof and roof garden, balconies, elevator shafts, swimming pools and fountains sealing
- \* Sealing the retaining wall in the negative floors
- \* Sealing concrete, stone, brick drinking water tanks
- \* Sealing and isolating the surfaces of water and sewage treatment plants (STPs)
- \* Covering concrete water and sewage lines

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* Can be applied on concrete surfaces only 48 hours after concreting
- \* Resistant to temperature changes (-40 ~ +80°C)
- \* The ability to increase the length and flexibility
- \* It has the ability to implement all types of pavements on it
- \* Can be dyed and can be produced in different colors
- \* Resistant to the penetration of water and destructive ions such as chlorine and sulfate
- \* Resistant to abrasion
- \* Resistant to alkaline substances and inorganic acids
- \* Non-toxic in contact with drinking water (for sealing drinking water tanks)

### Advantages:

- \* Compared to bitumen based systems, it has the following advantages:
- \* Resistance to corrosive conditions and various salts (Chemical Resistant)
- \* Resistance to ultraviolet rays (UV Resistant)
- \* High adhesion
- \* Breathability
- \* Crack Bridging ability
- \* Easy implementation

### International Standards or Permission:

- \* CE
- \* ISO 9001
- \* ISO 14001
- \* ASTM D4541
- \* ASTM D412
- \* ASTM D 234-12
- \* BS 6920-2-6:2014
- \* DIN 1048





## ➤ Anti-Slip Solution Used on Stone and Ceramic Surfaces

◆ Sharif Fanavaran Anil Co.

### Product Introduction:

Nowadays, stone and ceramic surfaces are used abundantly for the flooring of houses and passages, etc. The main problem with this type of flooring is its low friction coefficient (especially when wet or foamy). Slipping and falling every year leads to substantial financial and personal damage. According to the statistics published by CDC, about 95% of hip fracture cases are related to slipping. It is difficult to repair a hip fracture, and many people will not be able to live alone after that. "Static anti-slip solution" increases surface friction without creating a coating on the surface due to microscopic roughness (on the nanoscale). This solution is a type of surface modifier that increases the sliding resistance of the surface. The anti-slip solution is a compound used to increase the friction between two surfaces and reduce the possibility of slipping and falling.

**Annual Production Capacity:**

800,000 Packages

**Founded:**

2016

### Application:

Preventing people from slipping in homes (toilets, kitchens, stairs, etc.) and public places (swimming pools, commercial complexes, nursing homes, etc.)

*This product is a final B2B consumer product.*

### Technical Specifications:

<b>Color</b>	Yellow, green, blue, purple (depending on product grade)
<b>Scent</b>	Aromatic
<b>Functional temperature</b>	Above the freezing point, it evaporates at high temperatures
<b>Shelf life</b>	2 years
<b>Durability</b>	About 1 year
<b>Neutralizer</b>	Water
<b>Drying time</b>	20 to 30 minutes depending on the type of surface and conditions

### Advantages:

- ✧ Lower price than similar products
- ✧ Longer durability than similar products
- ✧ No change in surface appearance
- ✧ Greater scope of application



### Application:

Tile and ceramic industries

## ➤ All Kinds of Ceramic Colors

📍 Tirazheh Aseman Alborz Co.



### Product Introduction:

Ceramic pigments are mainly metal oxide structures used to create color in ceramic designs. These compounds are used in underglaze (preparation of colored glaze) and overglaze (applied on the glazed surface, with various printing methods such as transfer printing, screen printing, inkjet printing, etc.).

Each ion has a different color in ceramic oxides with its own capacity.

The types of ceramic pigments produced by this company are available in powder form in different spectrums and codes, such as black, navy, blue, turquoise, yellow, brown, mustard, orange, orange, cream, green, purple, etc. When used together with glaze powder, additives, and a suitable solvent, this product is applied as a slurry on all kinds of ceramic artifacts, including tiles and porcelain. After baking at the right temperature, the desired color and characteristics are created.

The production of some pigments is effortless, and some, such as red, green, or gold, are very difficult.

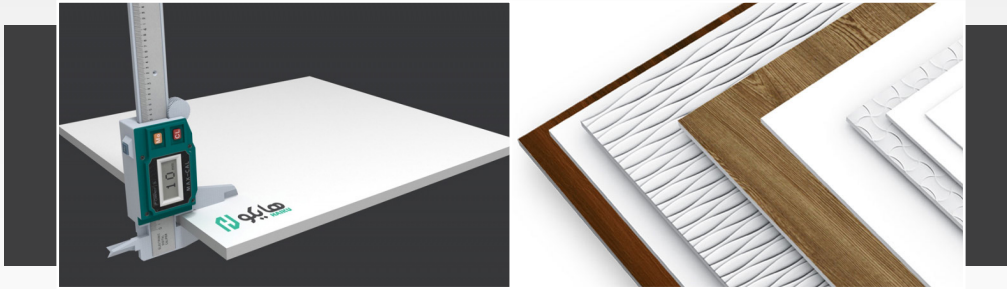
**Founded:**

2010

*This product is a final B2B consumer product.*

### Technical Specifications:

- \* Synthesis of the same color scheme for each product, especially over time and with the change of raw materials
- \* No impurity entering during the production process



## ➤ Polyvinyl Chloride Foamed Sheet Containing Silica Nanoparticles

◆ Shafigh Co.

[www.shafigh.com](http://www.shafigh.com)



### Product Introduction:

Polyvinyl chloride (PVC) foam is produced to replace wood. Rigid PVC foam has a structure on which drilling, sawing, and screwing can be done (without creating cracks or splits). This foam has many advantages over wood, including high chemical resistance, resistance to the invasion of microbes, good compatibility with the atmosphere (in the sense that it does not rot), the ability to produce parts with a complex structure, resistance to fire, colorable and printable, the price per unit of low volume, simple machining and good sound insulation. Along with the advantages of PVC foam, this material has disadvantages, including its high manufacturing cost and low toughness.

**Founded:**

1978

### Application:

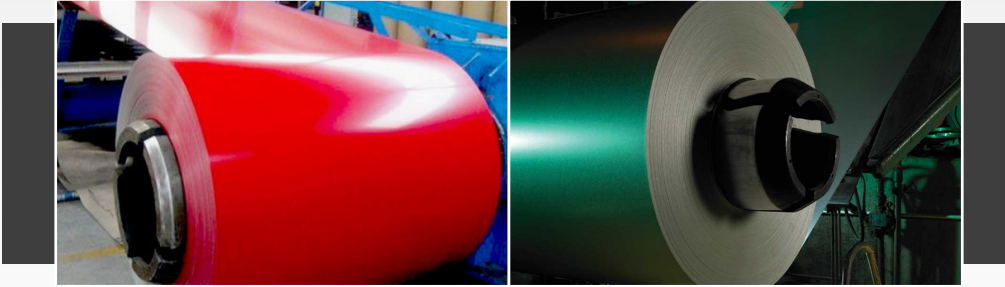
Use as window frames, cabinet doors, advertising boards, etc

*This product is a final B2B consumer product.*

### Technical Specifications:

#### Raw material

- \* PVC powder
- \* Calcium carbonate
- \* Polar polyethylene wax
- \* Foaming agent
- \* Acrylic processing aids
- \* Thermal stabilizer
- \* Lubricant
- \* Titanium dioxide paint
- \* Including Nano Particles
- \* Other additives including dyes and fluorescents



## ➤ Construction Coil Coating

🏠 Tuka Paint Foolad Sepahan Co.

[www.tukapaint.com](http://www.tukapaint.com)



### Product Introduction:

Coil Coating is a continuous and fully automated process for coating and painting metals before use. In this method, during a continuous process, both the top and bottom surfaces of the sheet are first cleaned, chemical treatment is performed on it, primer is applied, it is baked in the furnace, the top coating and color is applied, and then it is placed in the furnace again. and finally the painted sheet is rolled and packed. The finish created in this way is very beautiful and durable and is less expensive than other metal coating methods. This method has wide and innovative applications and does not harm the environment.

**Annual Production Capacity:**

4,000 Tons

**Founded:**

2006

### Application:

- \* The roof of the building
- \* metal plating
- \* Composite panels or sandwich panels
- \* Door and window making
- \* Sports tools and equipment

*This product is a final B2B consumer product.*

### Advantages:

- \* Lower price than similar products
- \* The high position of the products in terms of technical and quality level compared to competitors, due to the leading knowledge-based products



### Application:

- \* The roof of the building
- \* metal plating
- \* Composite panels or sandwich panels
- \* Making doors and windows
- \* Sports tools and equipment

## ➤ Construction Coil Coating

◆ Saramad Rang-e Shomal (SRS) Co.

[www.srspaint.com](http://www.srspaint.com)



### Product Introduction:

Coil Coating is a continuous and fully automated process for coating and painting metals before use. In this method, in a constant process, both the top and bottom surfaces of the sheet are cleaned, chemically treated, primed, fired in the oven, coated and painted, and finally placed in the oven again. After all these steps, the painted sheet is rolled and packed. The surfaces created in this way are stunning, durable, and less expensive than other metal coating methods. This method has broad and innovative applications and does not harm the environment.

**Annual Production Capacity:**

10,000 Tons

**Founded:**

1999

*This product is a final B2B consumer product.*

### Advantages:

Distinctive formulation compared to similar products

Second Chapter  
Construction Equipment & Machinery



# 2<sup>nd</sup> CHAPTER

First Chapter

**SECOND**  
CHAPTER

Third Chapter

Fourth Chapter

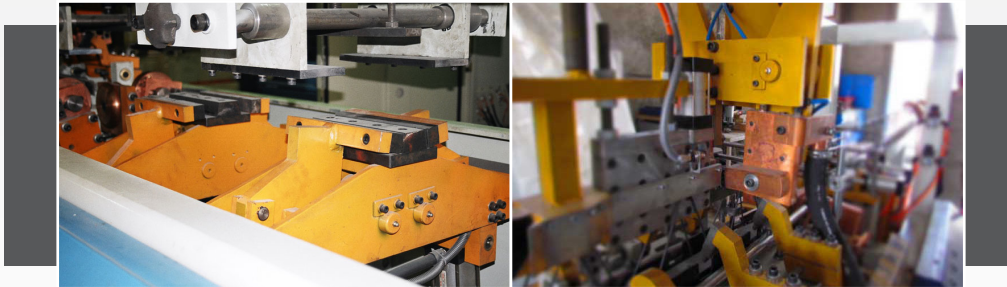
Fifth Chapter

## Construction Equipment & Machinery

- Fully Automatic Machine for the Production of Beam Metal Trusses | 132
- Fully Automatic Machine | 134
- Machinery for Producing All Types of Concrete Pipes and Boxes | 136
- Flooring Machine | 138
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- TADAS Damper | 142
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Sections

Equipment Related to Construction ○



## ➤ Fully Automatic Machine for the Production of Beam Metal Trusses

◆ Novin Sazan Setareh Sanaat Co.

[www.novinsazansanat.com](http://www.novinsazansanat.com)



### Product Introduction:

The truss is a triangular structure that can withstand heavy loads in large structures such as roofs, bridges, and aerospace structures, as well as tensile and compressive forces. The beam truss is the simplest load-bearing member, which generally acts as a bending member. The fully automatic metal beam truss production machine can produce industrial trusses. The working mechanism of this device is that first, the rebar straightener straightens the roll of the rebars. Then three main branches and two secondary branches enter the machine's feeder to produce trusses (with a smaller diameter). The grippers hold the head of each branch and push it forward according to the set speed of the machine. 2 sub-branches are bent with each advancing step and welded to 3 stamped branches by the gripper. The stages of metal truss production are as follows: Opening and straightening the rebar from the coil, zigzag shaping, initial assembly, resistance welding of the components, and cutting the product according to the defined size.

#### Main Export Destinations:

Uzbekistan

#### Export History:

Up to 500,000 \$

#### Annual Production Capacity:

30 automatic lines

#### Founded:

2008

### Application:

Producing lattice girder (metal trusses)

*This product is a final B2B equipment.*

### Technical Specifications:

Device Model	TM2500	TM3500	TM5000	TM7000	
Welding type	Resistance				
Product Standard	1 - 2920				
Rebar feeding type	Up	Branch	Branch/Coil	Coil	Coil
	Down	Branch	Branch/Coil	Branch/Coil	Branch/Coil
	Zigzag	Coil			
Control System	PLC				
Required Electricity (Kva)	100	150	200	300	
Dimensions of the production line (m)	3 × 4 × 29	3 × 4 × 35	5 × 5 × 45	5 × 5 × 50	
The highest line speed (m/min)	9	9	18	30	
The maximum length of the product (m)	14	14	14	14	
The diameter of the upper rebar (mm)	Coil	-	8 - 12	8 - 12	8 - 16
	Branch	8 - 16	8 - 16	-	-
The diameter of the tensile rebar (mm)	Coil	-	8 - 12	8 - 12	8 - 16
	Branch	8 - 16			
The diameter of the zigzag rebar (mm)	4 - 6	4 - 6	4 - 6	4 - 6	
Cutting step (cm)	10				
Zigzag step (cm)	20				
Truss height (cm)	15 - 35	15 - 35	15 - 35	7 - 35	

### Advantages:

- \* Competitive price with the world's most famous brands
- \* High quality construction and the use of world-reliable standard elements
- \* The possibility of providing after-sales services to all over the world
- \* The possibility of providing online services through the network to customers all over the world

#### International Standards or Permission:

Technical approval of Housing and Building Research Center





## ► Fully Automatic Machine for the Production of Joist and Traverse Trusses

◆ Pishro Afrand Sanaat Armeh Co.



### Product Introduction:

Standard industrial joist truss; The prefabricated network consists of lower, upper and transverse tensile rebars (zigzag) that are connected in the form of a truss by resistance welding (standard joist welding) and the connection of the joist truss by electric arc welding (manual) is not allowed. (Iranian National Standard No. 1-2909 page 8) The production process of the standard joist truss for use in T-shaped roofs is fully automatic and controlled by PLC, as a result of the operator's activity is limited to the overall control of the line, placing the raw materials and receiving the final product, which is the standard joist truss.

The operator can control and program all the functions of the production line and product specifications through the user interface panel. This decrease in manpower, with the increase in production, is associated with flexibility and productivity, which is the advantage of the industrial joist production lines of Novinsazan.

The device in question is an integrated device for receiving rebars, adjusting the distances and welding them in the form of a truss, which first opens the coils of different sizes of rebars, and after straightening the rebars and stress relieving, turns two strands of them into zigzags according to the production plan and welds them with the remaining three strands of rebars by electro forging, and after calculating the required length, takes the entire truss and deposits the produced truss by the unloading robot.

**Founded:**

2016

### Application:

- \* Mass builders
- \* Wire rod industry factories
- \* Joist truss production factories
- \* Railroad traverse factories
- \* Block joist workshops

*This product is a final B2B equipment.*

### Technical Specifications:

- \* **Dimensions of the production line:** 2.5 x 30 meters
- \* Ability to produce up to 16 coils of rebar
- \* Ability to produce with various heights from 150 to 350 mm
- \* Ability to produce from branches and coils
- \* Production capacity up to 5000 meters per day
- \* Production speed up to 24 meters per minute
- \* Ability to produce with all types of rebar
- \* Ability to produce with 4 to 8 mm rebar
- \* Control the operation of the device with PLC and display and select details with HMI
- \* With a hydraulic cutter for cutting in planned sizes
- \* Fully automatic welding capability with passable quality of the standard organization
- \* Ability to communicate with the device to fix possible defects



## ➤ Machinery for Producing All Types of Concrete Pipes and Boxes

◆ Parsian Machine Sazan Tabriz Co.

[www.parsianmachine.com](http://www.parsianmachine.com)



### Product Introduction:

Triple-action KADONA systems have the ability to produce all kinds of street kerbs and gutters, all kinds of different materials and flower boxes. These systems are highly mobile and have the possibility of producing the mentioned concrete parts in open space. In fact, these types of systems will cause minimal financial and time depreciation.

**Founded:**

2016

### Application:

- \* Construction
- \* Urbanization

*This product is a final B2B equipment.*

### Technical Specifications:

Overall dimensions of the machine	220 × 230 × 170
Demolding method	Hydraulic
Turning method	Manual
Hydraulic system pressure	Free fall - consecutive
Maximum power consumption	25 A
Total weight	1705 kg
Molding cycle	25 to 30 sec
Production capacity	1200 pieces in 8 hours of working
Mold shape	Different types of mold at customer's request

### Advantages:

Low energy costs- low costs of manpower-very fast production speed more economical than similar products. Concerning earthquakes and natural disasters, potential risks are minimized due to the materials used. The speed of production and execution is much higher than in similar products. Energy costs are also at the minimum possible, as similar products consume 8 times more energy and gas for production.

### International Standards or Permission:

- \* ISO 45001: 2018
- \* ISO 14001 : 2015
- \* ISO 9001 : 2015



## ➤ Flooring Machine

◆ Parsian Machine Sazan Tabriz Co.

[www.parsianmachine.com](http://www.parsianmachine.com)



### Product Introduction:

Considering the development of paving and flooring of streets and sidewalks, Tabriz Parsian Machine Manufacturers has designed and produced a paving system using the latest technology. This system is 8 times faster and more accurate than the manual mode, and because of the tendency of the urban fabric towards paver blocks instead of asphalt, this machinery will be of great importance.

**Founded:**

2016

### Application:

Flooring and laying pavers on sidewalks and streets and helping to beautify the city

*This product is a final B2B equipment.*

### Technical Specifications:

The system is carried by a forklift and performs the geometric transfer and shaping of the flooring with two jacks which are driven by the central hydraulic system. This system has the fastest speed of over 800 to 1000 square meters of flooring per day compared to other similar flooring systems.

### Advantages:

Preservation of fossil resources such as oil and because oil and oil derivatives are not used, the products produced by these machines do not pollute the environment, while other similar products cause groundwater pollution. In terms of urban fabric beautification, it is incomparable with similar products and because of the great variety (more than 3000 models), it is possible to change the urban fabric and city view in the shortest time and in the most beautiful way possible.

### International Standards or Permission:

- \* ISO 45001: 2018
- \* ISO 14001 : 2015
- \* ISO 9001 : 2015



➤ **Steel Structure Design Software (SazehNegar), Including Sections of Shear Walls, Foundation (PeyNegar), Ceiling (SaghfNegar), etc.**

◆ Rayan Sazeh Engineering Ltd Co.

[www.rayansazeh.com](http://www.rayansazeh.com)



**Product Introduction:**

Sazeh Negar software package including sections of shear, steel plate shear, Peynegar (foundation graph), Saghfnegar (ceiling graph), and Shamnegar. Using the output of ETABS and SAP2000 software in its independent graphical environment, Sazehnegar Software designs metal structure connections (welded and bolted beam to column connections - brace connections and column plate connections) based on American AISC regulations. Peynegar module designs and draws all types of foundations with any complexity using the output of the SAFE software and based on the American ACI regulations. The foundation maps, along with the Listofer and the calculation notebook, are the output of this software. Using the output of the SAFE software and based on the American ACI regulations, the Saghfnegar module designs and draws all types of single-sided flat, double-sided flat, and single-sided waffle and double-sided waffle ceilings with any complexity. Waffle ceiling reinforcement and molding maps, along with Listofer and calculation notebook, are the output of this software.

**Founded:**

2004

**Application:**

- ※ Can be used in offices and engineering companies to design and draw structures
- ※ Accuracy, speed and precision of calculations and drawing of structures

*This product is a final B2B service.*

**Advantages:**

Reasonable price and performance



## ➤ TADAS Damper

◆ Sainar Part Sazeh Engineering Co.

[www.partsazeco.com](http://www.partsazeco.com)



### Product Introduction:

Controls of structures or dampers are a set of operations performed to improve structures' behavior under dynamic loads. These processes range from simple changes in the dimensions of beams and columns and other structural elements to using complex tools and algorithms.

One of the most widely used types of these dampers is passive damper systems. In these systems, the energy input to the structure, caused by dynamic stimulation, is wasted by additional devices and equipment installed in the structure. As a result, the energy absorption demand of the system is reduced. Among the tools that are used in passive control is a type of passive damper called "TADAS damper," whose energy damping mechanism is such that the triangular blades of these dampers yield much faster than the main elements of the structure and after yielding and entering its nonlinear region, during its hysteretic cycles, the energy of the earthquake is lost as heat. In this way, less energy from the earthquake is applied to other structural elements. These devices can dissipate significant incoming earthquake energy with predictable performance.

Today, metal dampers are used in extensive projects in the world, including the earthquake-prone country of Japan, and some of the significant damper-producing companies in the world are producing and using this type of dampers because of their key advantages.

#### Main Export Destinations:

Iraq

#### Export History:

Up to 500,000 \$

#### Annual Production Capacity:

2,000 Pcs

#### Founded:

2013

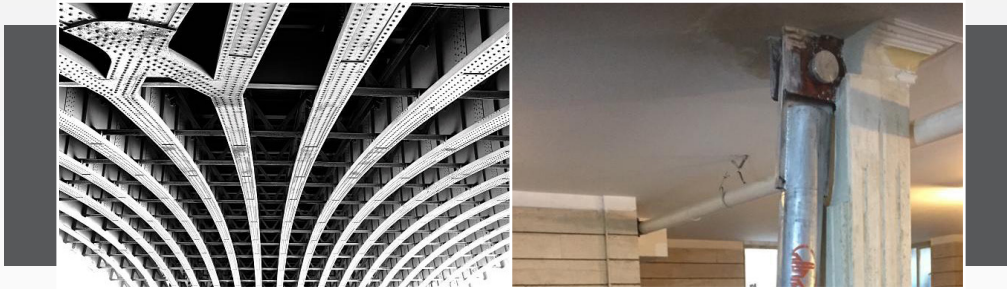
### Application:

TADAS damper can be used in all types of structures (concrete or steel) with any area and number of floors. Still, the most significant effect is increasing the damping of the structure and reducing the base shear design and thus reducing the weight of the structure for buildings with a total area of more than 5000 square meters and a height of more than 15 meters from the base level or more than 350 square meters for each floor occurs. In this case, it can save 5 to 15 percent in building the structure (including the cost of dampers). In general, using dampers for smaller structures can incur costs for the project, which are very small compared to other building costs. In many designs, dampers have also led to the removal of shear walls and foundation piles.

*This product is a final B2B equipment.*

### Advantages:

- ✦ Applicable in all structures and types of projects (concrete, steel, retrofitting and new construction)
- ✦ Reducing the weight of the structure's skeleton and thus reducing construction costs and increasing construction speed
- ✦ Increasing the safety level of the building and improving the performance of the structure against earthquakes
- ✦ Reduction in the dimensions of the main elements of the structure (beams and columns)
- ✦ Reduction or elimination of shear walls and piles under the foundation
- ✦ Reducing the damage in the main elements of the structure and reducing the downtime in the operation of the building (after an earthquake).
- ✦ Reducing the cost of repairing the structure after the earthquake.
- ✦ Ability to adapt to different architectural designs.



## ➤ Seismic Retrofitting of Structures Using Gapped-inclined Brace System (GIB)

◆ Perkaleh Consulting Engineers Co.

[www.perkaleh.com](http://www.perkaleh.com)



### Product Introduction:

The gapped-inclined brace system (GIB) is a new structural system used to reduce seismic damage and improve structures' safety, stability, and resilience against earthquakes and floods. The GIB system consists of a brace and a built-in gap installed almost vertically on the subfloor of buildings. This causes seismic energy to be consumed on this floor. With its help, in addition to preventing the building from collapsing, the seismic damage on the upper floors of the building is also significantly reduced, and the building can be used immediately after the earthquake. Also, due to the steep angle of these braces, the architectural structure of the building does not change significantly.

**Annual Production Capacity:**

2,000 Pcs

**Founded:**

2006

### Application:

Construction, design, and seismic improvement of used structures, including residential, office, commercial buildings, hospitals, etc.

*This product is a final B2B equipment.*

### Technical Specifications:

- ※ Consists of metal brace and gap element
- ※ A relatively vertical angle, which, in addition to the architectural advantage, causes the consumption of earthquake energy on one floor and no damage on all the upper floors.

### Advantages:

- ※ Very economical (made of steel) compared to dampers and isolators
- ※ Improvement operations need to act on only one floor (basement or ground floor)
- ※ Repair operations after the earthquake only in the basement or ground floor (no interference in the use of the building)
- ※ No need to load the building during installation
- ※ High speed of carrying out the entire improvement operation (less than a month)
- ※ No interference in the architecture of the building due to the acute angle of the brace

Third Chapter

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# Mechanical Equipment



# 3<sup>rd</sup> CHAPTER

First Chapter

Second Chapter

**THIRD**  
CHAPTER

Fourth Chapter

Fifth Chapter

## Mechanical Equipment

Condensing Boiler | 150

Intelligent Automatic Shut-Off Valve for Drinking Water Tanks | 154

Sections

Ventilation Systems ○

Valves and Water and Sewage Equipment ○





## ➤ Condensing Boiler

◆ Makhzan Foolad Rafe (Daboo Sanat) Co.

[www.daboosanat.com](http://www.daboosanat.com)



### Product Introduction:

The design of the condensing boiler is such that several times the input fuel air enters the chamber and the moisture in the air is converted into steam by absorbing heat and impacts the water resulting from combustion in one or two exchangers and the energy in the steam is recovered. Water vapor is condensed by water inside the converter tubes and increases the thermal efficiency to more than 95%. Condensing boilers of this company are produced in two series, Admiral and Capital, and the efficiency of both series is 98%.

Admiral series technology is related to the use of Al-Si-Mg alloy heat exchangers that work with gas fuel and are designed and manufactured according to the requirements of the EN 15502 standard. These boilers, by using an advanced control system, along with the premix modulit metal fire burner and the use of high-quality materials in construction, enable their long working life and easy operation. They are also followed by a clean, uniform and stable ignition; So that NO<sub>x</sub> and CO emissions are less than 20 ppm and 100 ppm, respectively.

Capital series technology is related to the use of hybrid exchangers and gas and diesel are used as their fuel. The main components of this boiler include a combustion chamber, shell and tube condenser made of 316 stainless steel, a burner with stable excess air technology in the entire capacity range, and a microprocessor-based intelligent control system.

#### Main Export Destinations:

Russia, Turkey, Qatar, Azerbaijan, Armenia, Uzbekistan, Turkmenistan, Georgia, Iraq, Syria, Kazakhstan, Afghanistan, Kuwait, Bahrain, Oman and Yemen

#### Annual Production Capacity:

**Admiral condensing boiler:** 150 devices  
**Capital condensing boiler:** 30 devices

#### Founded:

1999

### Application:

Central heating system of the building

*This product is a final B2B equipment.*

### Technical Specifications:

The capacity of the Admiral series is from 70 to 3230 kW and the Capital series is from 220 to 2000 kW.

Technical specifications of the Capital series:

- \* Working pressure up to 25 bar
- \* Heat exchanger made of stainless steel 316 and furnace made of 19MN6
- \* Thermal efficiency in non-condensing mode 90.2% in condensing mode 98.2%

Model	Capacity (kW)	Nominal output heat (C° 80/60)	Nominal output heat (C° 50/30)	Dimensions		
		Min/Max	Min/Max	length	width	height
DS-CB-WW-220	220	214/23	220/26	1600	800	1300
DS-CB-WW-300	300	285/31	300/35	1900	800	1400
DS-CB-WW-400	400	356/39	400/43	2200	950	1450
DS-CB-WW-550	550	498/55	550/61	2400	1050	1550
DS-CB-WW-750	750	713/84	750/93	2800	1100	1650
DS-CB-WW-1000	1000	970/115	1000/128	3350	1150	2100
DS-CB-WW-1500	1500	1360/173	1500/192	3800	1300	2250
DS-CB-WW-2000	2000	1850/221	2000/247	4200	1350	2300

### Advantages:

#### Admiral condensing boiler:

- \* High level technology and advanced manufacturing operations
- \* High efficiency
- \* Ease of maintenance and repair
- \* Premix metal fire modulit technology
- \* Central heating systems

#### Capital condensing boiler:

- \* Intelligent control system with the ability to connect to the BMS system of the building
- \* Ability to connect high temperature hot water return system
- \* High water intake volume
- \* Dual fuel gas and diesel
- \* With the ability to design and build up to a capacity of 4 million kilocalories per hour

#### International Standards or Permission:

##### Admiral condensing boiler:

- \* CE quality control degree
- \* EN 15502 standard
- \* ISO 9001:2008

##### Capital condensing boiler:

- \* Class 3 emission standard EN676
- \* Class 2 standard EN267

#### Export History:

- \* 1,000,000 - 10,000,000 \$





## ➤ Intelligent Automatic Shut-Off Valve for Drinking Water Tanks

◆ Pishgam Energy Khavar Co.

www.peko.co



### Product Introduction:

After a disaster (earthquake, landslide, pipe destruction due to equipment fatigue, physical damage, etc.), there is a possibility of damage to water pipelines. After the incident, it is vital to provide safe and sanitary water. By installing emergency tanks, people can be supplied with drinking water for a limited period of time (until the rescue forces arrive and supply water sources). If the water does not circulate in the tank, its quality will gradually decrease. In order to solve this problem, clean water must constantly circulate in the tank. If contaminated water enters the tank, the quality will drop and it will not be drinkable. Therefore, there is a need for equipment that blocks the path of the tank and isolates the tank if contamination enters the line.

This is done by the emergency shut-off valve of drinking water tanks. The general rule of operation of the emergency shut-off valve of tanks is based on this principle that, as long as there is positive pressure in the water supply system, even if there is a break in the lines, it is impossible for contamination to enter the pipes. But if the static pressure at the entrance of the emergency shut-off valve is lower than the specified value, it indicates the possibility of damage in the water supply network. In this case, the emergency shut-off valve separates the tank from the network and transfers the water directly downstream.

**Founded:**

2009

### Application:

✳ Water and sewage industry, construction, etc.

*This product is a final B2B equipment.*

### Technical Specifications:

Dimensions	Values
Mass	230 kg
Flange diameter	285 mm
Number of flange holes	8
Drilling circle diameter	240 mm
Hole diameter	23 mm

Application		Water		
Nominal diameter (cm)	Nominal pressure (bar)	Hydrostatic test (bar)		Maximum pressure allowed at 70 (bar)
		Body	Sealing	
150	10	17.5	10	10

Fourth Chapter

# Electronic Equipment



# 4<sup>th</sup> CHAPTER

First Chapter

Second Chapter

Third Chapter

**FOURTH**  
CHAPTER

Fifth Chapter

## Electronic Equipment

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Sections

Meters	○
Building Electrical Equipment	○
Building Protective Equipment	○
Firefighting Equipment	○
Building Management System	○



*This product is final B2B and B2C equipment.*

**Technical Specifications:**

	Advanced digital meter, smart, single-phase, multi-tariff	Advanced digital meter, smart, three-phase, multi-tariff	AMI single-phase, multi-tariff smart digital meter	AMI three-phase, multi-tariff smart digital meter
<b>Pulses per kilowatt hour</b>	2000			
<b>Input reference voltage</b>	230 V	230 V Three-phase / 400 V Phase to phase	230 V	230 V Three-phase / 400 V Phase to phase
<b>Input voltage range</b>	150 to 320 volts	85 to 230 volts	103 to 320 volts	103 to 320 volts
<b>Input overvoltage tolerance</b>	Up to 460 V permanent	Up to 450 V permanent	Up to 450 V permanent	Up to 450 V permanent
<b>Base current</b>	5 A			
<b>Maximum current</b>	100 A			
<b>Reference frequency</b>	50 Hz			
<b>Input frequency range</b>	45 to 65 Hz	45 to 65 Hz	42.5 to 65 Hz	42.5 to 65 Hz

➤ **Electricity Meter**

◆ Electronic Afzar Azma Co.

[www.afzarazma.com](http://www.afzarazma.com)



**Product Introduction:**

The production, transmission and distribution of electric energy is one of the most important and costly elements for any country, and it is clear that part of the costs of this process must be paid by the consumer of this energy. The electricity meter is a device that calculates the amount of energy consumption in terms of kilowatts/megawatts per hour for each consumer. High accuracy, compatibility with environmental conditions, low consumption, having the necessary standards, long life and proper after-sales service are the necessary conditions for any measuring device.

These meters are digital and smart and are made in different single-phase and three-phase models with direct, primary or secondary connection. Also, in order to correctly calculate the amount of electricity consumed, these meters are produced in a multi-tariff and intelligent manner.

**Main Export Destinations:**

Afghanistan

**Export History:**

1,000,000 - 10,000,000 \$

**Annual Production Capacity:**

6,000,000 Devices

**Founded:**

1980

**Advantages:**

- \* High Quality
- \* Global Standards
- \* Competitive Price

**International Standards or Permission:**

- \* IEC Standards: 62052-11 / 62053-21 / 62053-23 / 62054-21 / 62052-21 / 62056-61 / 62056-21 / 60999-1 / 62059-31 / 62059-11 / 62059-21 / 62059-41
- \* ISO/IEC 646
- \* BS 7856
- \* DLMS-Blue Book / DLMS-Green Book
- \* EN Standards: 50470-1 / 50470-3
- \* ISO 9001:2015 / ISO 14001:2015 / ISO 45001:2018
- \* KEMA
- \* Tavanir Org.



## ➤ Electricity Meter

◆ Karafarinan Rahpou Elmi Tabriz Co.

[www.kret.ir](http://www.kret.ir)



### Product Introduction:

The smart single-phase electricity meter is designed and built to measure the electricity consumption of residential customers. Current and voltage measurement is done through the current transformer and voltage divider and is stored in the device's memory. Also, the subscriber's monthly consumption will be sent upon request from the distribution company. Requesting and sending the amount of consumption is also done through SMS.

If the electricity consumption fee of the household is not paid, instead of completely cutting off the electricity consumption, the amount of current consumption (and, as a result, the power) can be limited by sending an SMS command. The subscriber is obliged to remove his high-use devices within 15 minutes; Otherwise, after 15 minutes, the household's electricity will be cut off, and the subscriber must turn on the electricity consumption through the LCD touch meter while removing the high-consumption devices.

This intelligent electricity production meter (KRET) can measure and record shared energy consumption along with two-way communication with distribution companies to transmit shared consumption information and receive control orders. KRET meter can solve the problem of a complete power cut and blackout in hot seasons and peak hours. Since it allows the distribution company to limit the consumption flow, this company can restrict the subscriber's consumption flow to the required amount.

**Annual Production Capacity:**

200 Devices

**Founded:**

2017

### Application:

Can be used for subscribers of distribution companies to measure household electricity consumption and implement peaking policies

*This product is final B2B and B2C equipment.*

### Technical Specifications:

- \* 32-bit CPU
- \* **Working voltage:** 230 volts
- \* Sending and receiving information under the GPRS network
- \* Analysis of subscriber's consumer information

### Advantages:

- \* Ability to read remotely, change tariffs and manage energy consumption
- \* The possibility of limiting the electricity flow by software by the electricity distribution company and the ability to implement peaking policies
- \* High product quality and measuring the amount of electricity consumed with high accuracy
- \* The proper price



## ➤ Gas Meter

◆ Ekbatan Gas Control Co.

[www.egc.ir](http://www.egc.ir)



### Product Introduction:

This device can calculate the volume of gas consumed according to the gas temperature every hour, so the gas volume is calculated according to the region and the relevant temperature. Using the IOT-NB telecommunication network, all gas consumption information, gasometer events, and notifications are sent to the control center daily and periodically.

This equipment has a handheld with a simple interface and graphics to read gasometer information and make changes in the program; as a result, the on-site presence of the operator is minimized. The low-consumption design of the electronic part is such that it can work for ten years with only one battery.

**Annual Production Capacity:**

5,000 Devices

**Founded:**

1983

### Application:

Smart home gasometer is used to calculate and measure the volume of gas consumed by homes. Big sizes are also used for industrial purposes.

*This product is final B2B and B2C equipment.*

### Technical Specifications:

- \* Processor with Ultra Low Power technology, bit cortex M0+ range 32
- \* Very low consumption while working at high speed
- \* The ability to detect the rotation of the meter (manipulation detection)
- \* Temperature sensor with an accuracy of 1.1 degrees Celsius and a wide temperature range of -91 to +116
- \* Short response time and very low consumption
- \* LED graphic display
- \* The ability to display both Farsi and English languages
- \* The ability to set a password to enter the settings menu
- \* The ability to open and close the electric faucet on-site or remotely
- \* The ability to display 11 days of consumption
- \* The ability to display corrected consumption, consumption under warning, events, meter status, battery status, time and date
- \* The ability to detect door opening
- \* Data retention after 20 years of power outage
- \* It has a separate memory for storing the backup firmware
- \* Optical port with secure read and write capability under EN62056-21 protocol
- \* Integrated with MDM and CMM network to update firmware

### Advantages:

- \* High accuracy of measuring and calculating the amount of consumption
- \* Ability to send daily and periodic information
- \* Affordable price





## ➤ Gas Meter

◆ Noavaran Sanat Ariosam Co.

[www.ariosam.ir](http://www.ariosam.ir)



### Product Introduction:

This device deals with the remote reading of correctors connected to industrial gas meters. This is done through the RS232 port and transmits the parameters of the gas station and the collected information to the server of the gas company using AES256 encryption with double public and private keys. The server software also receives, stores, processes, and displays the information required by the user. Due to its ultra-low consumption structure, this product works for at least seven years using only one non-rechargeable battery (+ another battery if using the second channel of the device) and does not require city electricity. This system is an exclusive mini RTU for the gas industry (complying with ATEX requirements and standards for explosive environments) with optimized cost and performance. This equipment currently has no competitors, is manufactured in Iran, and is designed according to the very advanced and strict ATEX standard. It should be noted that receiving the above-mentioned standard certificate, which is issued only by competent European authorities, is also the license to export this product to Europe. Branch 11 of the discussed standard (IEC60079-11) is related to intrinsically safe circuits for electronic equipment and briefly states that even in the event of a failure or error (hardware) in the equipment, the current and voltage levels along the circuit should be such that the resulting energy cannot cause an explosion (these values and conditions are stated in the tables and standard text). Compliance with this issue creates many limitations in the design and construction of the circuit, the use of various parts, etc. (For example, in certain conditions, the sum of the values of all the capacitors used in the board should not exceed 100 microfarads!).

**Annual Production Capacity:**

20000 Devices

**Founded:**

2015

### Application:

Major gas industry stations (factories, power plants) hospitals

*This product is final B2B and B2C equipment.*

### Technical Specifications:

- \* Designing and manufacturing according to IEC60079-11 and IEC60079-0 standards and receiving the corresponding test report from Epil laboratory.
- \* Equipment design based on EMC standards and considerations and receiving relevant certificates from Epil laboratory
- \* Design based on ultra-low power consumption (less than 4 micro amps in standby mode).
- \* Not needing a city power source or... and using a non-rechargeable battery for at least 7 years (for one reading and information exchange every 24 hours)
- \* No need for an external barrier, due to the application and consideration of intrinsically safe standards in communication ports (limitation of current, voltage and power levels according to the standard)
- \* Use of ARM processor and other low-power components
- \* Support for two completely isolated channels to communicate with correctors
- \* Ability to communicate in various telecommunication platforms, including GSM/GPRS, LoraWan, NB-IOT
- \* Communication and server information exchange using AES256 encryption with double public and private keys
- \* Designing and implementing the entire system based on the requirements of AFTA (cyberspace security) and receiving the AFTA product certificate for the system

### Advantages:

The competing manufacturers of this equipment that manufacture precision measuring equipment worldwide, such as Elster, Actaris, Vemm tec, etc., are themselves the manufacturers of electronic gas volume correctors, all of which are similar equipment to this product. Among their essential differences is that each of the mentioned products only covers the corrector of their brand. In contrast, the product of this company, while being compatible with different correctors, can simultaneously communicate with two correctors from two different brands. The products of foreign competitors, while having a much higher price, do not have security approvals and do not comply with the relevant domestic requirements (AFTA). Competitors' products can communicate with a corrector at the same time, and for this reason, they are not suitable for domestic use. (Most of the gas stations inside Iran have two lines and, consequently, two correctors.)

### International Standards or Permission:

- \* IEC60079-11
- \* IEC60079-0



## ➤ Water and Gas Meter

◆ Middle East Data Transfer Co.

[www.mdtcontrol.com](http://www.mdtcontrol.com)



### Product Introduction:

A smart water and gas meter is a flow meter that is placed in the flow path of fluids (water, sewage, gas, etc.) and measures the amount of passing fluid and it has the ability to display the measured information on site and can transfer the information to other measurement systems. This product can serve as a meter or flow meter in the path of the fluid pipe and calculate the flow rate. The flow meter based on pressure change technology has the possibility of measuring the flow of drinking water and other fluids.

In this method, the flow rate is measured by using a venturi meter in the flow path, which creates a pressure difference. Venturi meter is used to measure flow rate in pipes. In the converging part, the pressure energy of the fluid is converted into kinetic energy because the cross-sectional area of the pipe gradually decreases. Due to the constant volume flow rate of the fluid, its speed increases. In the divergent part, the cross-sectional area of the pipe gradually increases, and in this case, the kinetic energy is gradually converted into pressure energy. It is clear that the velocity of the fluid in the constricted section is higher than all other points. When the fluid passes through the venturi meter, its total energy will decrease slightly.

Therefore, there are two pressure sensors, one at the choke and one at the inlet of the venturi tube, which is constantly read. Then, their pressure difference is calculated and according to the diameter of the choke and the inlet, the calculated fluid flow rate is stored in the system. Using these data and the elapsed time, the amount of passing fluid is calculated and stored in the memory.

**Founded:**

2009

### Application:

Water and gas flow measurement

*This product is final B2B and B2C equipment.*

### Technical Specifications:

This system has the ability to connect to the modem through the M-BUS communication port and transfer data to the server. The product includes the following mechanical and electronic parts:

<b>Body</b>	<ul style="list-style-type: none"> <li>* Creating a suitable form of fluid flow for measurement</li> <li>* Consists of a venturi tube in which two pressure sensors and an electronic board are placed</li> </ul>
<b>Two pressure sensors</b>	<ul style="list-style-type: none"> <li>* Placement in the narrow part of the pipe and one at the entrance of the pipe on the body</li> <li>* Receiving the instantaneous pressure of the fluid at these two points and sending it to the electronic board</li> </ul>
<b>Electronic board</b>	<ul style="list-style-type: none"> <li>* ATMEGA32 processor</li> <li>* 485-RS interface</li> <li>* LCD and solenoid valve control circuit</li> <li>* Feeding board</li> </ul>
<b>Feeding board</b>	Converting 220 volts to 5 volts
<b>Processor</b>	<ul style="list-style-type: none"> <li>* ATMEGA8 is used in the initial model and ATMEGA32 is used in the developed model</li> <li>* Using the internal ADC and reading the pressure of each sensor</li> <li>* Calculating the amount of fluid consumed</li> <li>* Sending data through port 485-RS to the modem and displaying the values on the screen</li> </ul>
<b>Display</b>	2×16-character LCD
<b>Solenoid valve control circuit</b>	<ul style="list-style-type: none"> <li>* It consists of 4 MOSFETs with a current of about 7 A</li> <li>* Turn on and off the solenoid valve by active or inactive processor</li> </ul>



***This product is final B2B and B2C equipment.***

## ➤ Water Meter

◆ Sanjesh Afzar Asia Co.

[www.saa.ir](http://www.saa.ir)



### Product Introduction:

The MWM-525 smart water meter has an electromagnetic measuring mechanism and is designed to monitor water withdrawal from water sources and according to their environmental conditions. In addition to accurately measuring the flow of surface and underground water, this meter is able to record and store all the events and information related to the process of water harvesting during specified periods. This meter is able to transmit its information to the meter remote reading software through connection with the smart electricity meter or independently of it and by direct connection with the mobile phone telecommunication network and using the data platform to get the necessary settings from the software.

### Application:

- \* All regional water companies across the country
- \* Agricultural wells
- \* Industrial factories
- \* Agriculture and industries
- \* Municipalities
- \* Petrochemicals

#### Main Export Destinations:

Germany, Iraq

#### Annual Production Capacity:

100,000 Devices

#### Founded:

1999

### Technical Specifications:

- \* **Power source:**
  - 110-265 VAC, 46-65 Hz
  - Backup battery with 2 years operation life
- \* **Connections:**
  - Optical port to send/receive data with IEC 62056-21 standard
  - M-BUS
  - RS485
  - 4-20 mA output
- \* **Accuracy:** 2%
- \* **IP:** 67
- \* **Connection type:** Flange
- \* **Material:**
  - **Body:** Carbon Steel, Stainless Steel (AISI 304), Stainless Steel (AISI 316)
  - **Electrodes:** AISI 316L
  - **Lining:** EPDM, Hard Rubber, PTFE
  - **Flange:** Carbon Steel/ DIN2576, DIN2577, DIN2578, ANSI
  - **Size:** 1-56"

### Advantages:

- \* Complete management of water consumption
- \* Remote reading through connection with a smart electricity meter
- \* Special remote reading software
- \* Meter configuration software to make settings locally
- \* Resistant to weather changes
- \* Work with batteries during power outages
- \* Optical port to apply settings and download information locally
- \* Detect the direction of water flow and whether the pipe is empty
- \* Mayfair card reader system and the possibility of storing information on the card
- \* Charging the amount of water required by the subscriber with Mayfair card
- \* Output port for the pump circuit breaker or well solenoid valve
- \* Receiving commands and updating the software remotely
- \* Recording events and occurrences
- \* Consumption profile
- \* Volume and flow parameters that can be measured and recorded in the system



## ➤ Water Meter

◆ Iran Madar Co.

[www.iranmadar.ir](http://www.iranmadar.ir)



### Product Introduction:

It is a type of digital water meter that can intelligently control water consumption in addition to measuring the amount of water, in such a way that it will turn off the pump after the quota is over and it will not be possible to turn on the pump until the quota is replenished. The operation of these types of meters are based on electromagnetic flowmeters. According to the international standard EN ISO 6817, the measurement principles of electromagnetic flowmeters are based on Faraday's law around the effect of magnetic field and voltage induction in a moving conductor object. Whenever a moving object that has an electrical conductivity coefficient cuts a magnetic field, a voltage is induced in it, the amount of which depends on the intensity of the field and the speed of movement.

#### Main Export Destinations:

Afghanistan, Kazakhstan and Syria

#### Export History:

Up to 500,000 \$

#### Annual Production Capacity:

10,000 flowmeters and electromagnetic meters

#### Founded:

1983

### Application:

The product can be utilized for measurement and control of fluids in water and waste water industries, steel and cement factories, refineries and petrochemical, vehicle manufacturers, chemical and pharmaceutical applications, food and beverage industries and power stations and etc.

*This product is final B2B and B2C equipment.*

### Technical Specifications:

Flow measurement, Data record and transmission

### Advantages:

- \* High quality
- \* Competitive price
- \* Sales history to famous and valid industries
- \* One of the largest manufacturer of electromagnetic flowmeter in Iran and Middle East
- \* With certified calibration laboratory from 13 up to 1400mm diameter

### International Standards or Permission:

- \* ISO/IEC 17025 – CE from British Standard Institute
- \* ISO 4064 : 2014 – ISO 9001:2015-ISO 10003:2018



## ➤ Water Meter

◆ Espinas Hooshmand Gostar Co.

[www.espinas-co.net](http://www.espinas-co.net)



### Product Introduction:

Meters are generally tools that have the task of recording consumption information. The water meter also measures and records the amount of water passing through the pipe. In the fluid meter, the turbine inside the meter rotates with the pressure of the fluid movement. For this purpose, turbines use blades that can be propellers or paddles. That is, with each rotation of the turbine, according to the size of the passage, one or more units are added to the amount of consumption.

In standard and smart meters, the technique and method of counting (turning the turbine) are the same, and the difference is in how consumption is displayed and related calculations. In standard meters, numbers are calculated by mechanical counters and the rotation of gears and coefficients of the number of teeth, and then displayed; on the other hand, in smart or electronic meters, they are calculated by magnetic sensors, ultrasonic sensors, and other electronic counters and displayed on the LCD screen.

The smart water meter has the possibility of issuing disconnection and connection commands by the meter. The central control system and its support can record any defined event, send information online to the control center, equipped with a meter door opening sensor, well door entrance and panel door opening.

### Application:

This product is used to measure the amount of water consumed by households and also to measure the amount of well water in a smart way.

**Founded:**

2016

*This product is final B2B and B2C equipment.*

### Technical Specifications:

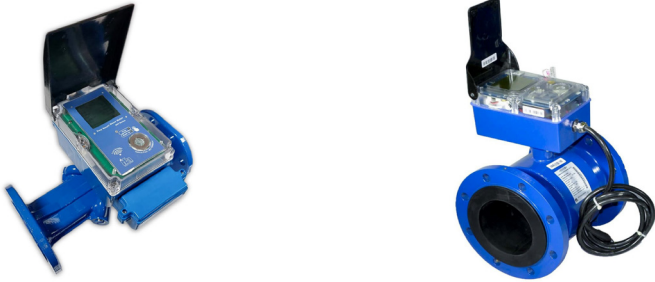
- \* Can be used in agricultural and industrial wells, diesel pumps and transmission lines
- \* Has an internal battery with a guarantee of system operation for at least 10 years and a power input of 100 to 740 volts (AC).
- \* Degree of protection 68 IP
- \* The operating temperature of the device is -40 to +80 °C
- \* The ability to disconnect and connect the solenoid valve in battery-powered devices, guaranteeing the battery operation of the device for at least 10 years.
- \* Measuring the amount of passing water with an accuracy of less than 7%
- \* RTC clock with the possibility of synchronizing with GPRS, supporting Saving Light Day and solar date
- \* Ability to apply rationing by defining different time frames for 4 periods
- \* Possibility of system configuration and software upgrade through GPRS
- \* 9-inch graphic LCD screen with adjustable backlight
- \* It has an internal data logger with the ability to send information through GPRS
- \* Ability to support RFID cards, Mifare type or DesfireEv1
- \* Has internal memory with high capacity to save all kinds of meter events
- \* Has an optical port to connect with a local manual reader
- \* The ability to connect to a separate breaker panel with the Bus-M Wired network
- \* Has an isolated Bus-M Wired port to connect with Faham meter and isolated port 485
- \* It has a relay output to command to cut off the diesel pump or cut off the electricity

### Advantages:

- \* Impossibility of tampering and hardware violation by protective seals
- \* Ability to register and read daily and monthly including the total volume of water consumed
- \* Affordable price and high measurement accuracy

### International Standards or Permission:

- \* AES128
- \* AES256
- \* 9 Dec
- \* ISO 7816 standard
- \* IEC standard 23-62056



### Application:

- \* Household consumption and consumption measurement
- \* The use of this meter in industrial sectors and also for agricultural wells with diesel or electric pumps is very suitable.

## ➤ Water Meter

🏠 Ifa Sanat Gharb Co.

[www.ifasanat.com](http://www.ifasanat.com)



### Product Introduction:

The smart electromagnetic water meter is basically a flowmeter that functions based on the electromagnetic method. In this method, a magnetic field is created by two coils in the path of passing water. Thus, the positive and negative ions of water are separated and attracted to two electrodes, which create a measurable voltage. This voltage is proportional to the cross-sectional area and flow speed inside the path. Therefore, the flow rate can be measured in the same way.

This production meter is very suitable for the agricultural and industrial sectors and the consumer or departments related to water consumption, especially the regional water departments, can observe the water consumption information with high accuracy.

**Founded:**

2006

*This product is final B2B and B2C equipment.*

### Technical Specifications:

- \* It has 100 to 220 volt AC power input, protected against two phases
- \* Measurement accuracy  $\pm 1\%$
- \* Has an internal battery (non-rechargeable) with a guarantee of the system working for at least 5 years
- \* Internal data logger with the capability of storing 100,000,000 records and sending information to the central site via GPRS
- \* It has impact detection sensors, magnetic field detection, temperature with the ability to measure -50 to +125 degrees Celsius and meter door opening sensor. Storage of the last 62 daily readings and the last 24 monthly readings

### Advantages:

- \* No need for periodic calibration
- \* Reducing service and maintenance costs
- \* Low price with high efficiency and quality

### International Standards or Permission:

- \* 16399ISO
- \* 9001ISO
- \* 14001ISO
- \* OHSAS
- \* HSE - MS



*This product is final B2B and B2C equipment.*

## ➤ Water Meter

◆ Sanjesh Abzar Pooyaye Ayande Co.

[www.pooyac.com](http://www.pooyac.com)

**POOYAC**

### Product Introduction:

The smart meter, as its name suggests, with the professional design of electronic boards in a smart way and the online system, prevents arbitrary and unauthorized water withdrawal.

The non-mechanical measurement system of water flow is such that there are two coils on both sides of the pipe (top and bottom) that create a magnetic field. According to Faraday's law, when the fluid passes through the magnetic field, an induced voltage is induced, and according to the formula, the water flow rate is calculated.

The following are the specifications of this device: multi-screen display with the ability to record all events related to the device, including the opening of its doors, disconnection and connection of electricity, instantaneous flow rate changes, high security to prevent any manipulation, allocation of a certain quota and a certain period.

### Application:

Can be installed and implemented for all water and sewage lines, such as drinkable water, underground water, pond, agricultural industry, etc.

**Annual Production Capacity:**

10,000 Devices

**Founded:**

2017

### Technical Specifications:

- \* **Variety of body materials:** iron, steel and...
- \* **Variety of liners:** rubber, polyethylene, PTFE and...
- \* Measuring accuracy with an error of less than 0.2%, 0.5% and less than 2% according to the customer's order
- \* 32dbi global locator
- \* Has an internal battery capable of working up to 10 years (non-rechargeable)
- \* Has pulse output and 4-20 mA
- \* It has systems for detecting the approach of a magnetic field from the outside in order to disrupt the operation of the device, detecting the opening of the device door and detecting an impact in order to disrupt the operation of the device.
- \* Water flow measurement in two directions (positive and negative)
- \* Storage of all information and consumption for up to 100 years
- \* With the ability to connect SAM Card to increase the security of the device's card reader
- \* With M-bus port to connect to Faham electricity meter
- \* With a relay to connect and disconnect the well power for optimal consumption
- \* RS485 port to connect to external modules such as power relay or pump power measurement

### Advantages:

- \* Capacitive touch buttons to increase the life of the device
- \* Capable of receiving commands remotely
- \* Unique performance in all paths with elbow-pipes and in the vicinity of joints without the need to comply with any standards before and after installation.
- \* Flexible in design, according to customer's needs and orders
- \* Integrated and separate structure

### International Standards or Permission:

- \* Has an internal clock with a exclusive backup battery according to the IEC62054 standard
- \* It has an infrared optical port for adjusting and reading the device compatible with the IEC62056 standard
- \* With RFID wireless contact card reader according to ISO7816 and ISO14443 standards
- \* IP 68 standard and protection against water and dust



### Application:

An electromagnetic flowmeter measures the fluid flow in production, transmission, and consumption networks of water and sewage, Measure intake oil and petrochemical, food, cement, etc. industries. This device is used in the water and sewage industry to accurately measure water production, water consumption from water storage tanks, well consumption control, agricultural consumption control, and water resources management in general.

## ➤ Water Meter

◆ Iranian Energy Control Co.

[www.iecco.ir](http://www.iecco.ir)



### Product Introduction:

This water meter is an electromagnetic flowmeter used to measure the flow of flowing fluid such as water, oil, etc. In summary, the product's working method is that the drive part of the coil creates a square pulse with a frequency of 6.25 Hz (according to the standard) by applying a constant current. The signal output of the electrodes is revealed in the amplifier, and after passing through the filters, it enters the analog-to-digital converter. The microcontroller sends the received values to the main board, and it is shown on display after converting to the appropriate value. In general, the product consists of 2 main electronic and mechanical parts.

#### Main Export Destinations:

Turkey, Armenia, Azerbaijan, Kyrgyzstan, Iraq and Afghanistan

#### Export History:

1,000,000 - 10,000,000 \$

#### Annual Production Capacity:

2,000 Devices

#### Founded:

2006

*This product is final B2B and B2C equipment.*

### Technical Specifications:

- \* Speed 0 to 15 m/s
- \* 1 second response time
- \* Measurement accuracy of 2 mm
- \* Working temperature -20 to +60
- \* Humidity 0 to 100
- \* Input voltage 10 to 30 volts
- \* Power consumption 6 watts
- \* 4 to 20 mA analog input
- \* 4 to 20 mA analog output
- \* Digital output
- \* Relay output
- \* Isolated RS485 port
- \* MBUS port
- \* Optical port

### Advantages:

- \* No need for periodic calibration and service
- \* Long shelf life and very high stability of the network
- \* High accuracy and performance, albeit with reasonable price

### International Standards or Permission:

- \* ISO9001:2015 standard
- \* OHSAS 18001:2007 standard
- \* ISO14001:2015 standard
- \* IP68 EXAMINATION certificate



*This product is final B2B and B2C equipment.*



## ➤ Water Meter

◆ Alborz Tavan Sepahan Engineering Co.

[www.alborztavan.com](http://www.alborztavan.com)



### Product Introduction:

Speed type mechanical meter is one of the most common types of meter, which is a flow detection component, a turbine or a propeller placed in the water passage, and the propeller's rotation calculates the speed and volume of passing water. A smart meter is an advanced meter that determines the amount of water consumption in more detail than a regular meter. It sends the received information to water companies for monitoring and billing through communication networks.

Some features:

- ※ The possibility of managing subscribers and issuing bills
- ※ Identifying and preventing meter abuse and manipulation
- ※ Statistical reports, including daily and cumulative consumption, battery status, etc., through software systems

### Application:

- ※ Urban, rural and regional water and sewage companies to manage water resources
- ※ Industrial branches and factories
- ※ Household branches
- ※ In the agricultural sector, using the product in water wells, in order to manage consumption
- ※ In the greenhouse sector, using new systems to manage and monitor water consumption

### Main Export Destinations:

Iraq, Africa and Syria

### Export History:

Up to 500,000 \$

### Annual Production Capacity:

50,000 Devices

### Founded:

2014

### Technical Specifications:

- ※ In accordance with the OIML- R49 standard
- ※ Accuracy Class: up to R160
- ※ Very low starting flow rate (0.5 liters per hour)
- ※ **Working pressure:** up to 1.6 MPa
- ※ **Working temperature:** 0.1 to 40 degrees Celsius (cold water)
- ※ Transferring information through NB-IOT protocols
- ※ The ability to determine the duration of information storage
- ※ Brass body with electrostatic paint, oven with edible base epoxy coating, with corrosion test certificate and coating and quality control certificate of parts involved with water.
- ※ Closing the valve completely mechanically through the pulse
- ※ Having the ability to define and determine water rationing when necessary
- ※ It has web-based software with secure protocols to monitor, control and report the status of the meter
- ※ **Alarms:** Leak and air detection, Magnetic attack alarm, Back flow detection, Battery alarm, Pond temperature alarm

### Advantages:

- ※ Designing electronic circuits using web-based software systems and generating encrypted codes for the hardware part
- ※ The use of a completely mechanical system to close the valve as soon as the charge is finished
- ※ Use of TTM technology
- ※ Using Nested loop system
- ※ Completely native and secure protocol

### International Standards or Permission:

- ※ INSO
- ※ ISO 9001
- ※ ISO 10002
- ※ ISO/IEC 27001
- ※ ISO 45001
- ※ ISO 14001
- ※ Patent Certificate for smart water meter
- ※ Technology Department License
- ※ Research and Development License
- ※ Operation license
- ※ Establishment permit



## ➤ Water Meter

◆ Dadeh Pardazan NoAndish Sayman Tech Co.

[www.saymantech.com](http://www.saymantech.com)



### Product Introduction:

Saymantech's smart water meter based on LoRa technology is a tool for accurate measurement and monitoring of water consumption. In addition to measuring the volume of water, this meter also measures the flow of water and through the processing of consumption patterns, it gives warnings when unusual consumption occurs and is therefore able to detect things such as leakage, pipe burst, meter failure, etc.

Information related to consumption and warnings, as well as information related to the status of the meter, is transmitted to the cloud servers of Sayman Tech's Internet of Things platform by telecommunications part embedded inside the meter through one of the long-range communication networks with very low power consumption for the Internet of Things, known as LoRaWAN. It is then provided to the water and sewage companies as well as the subscriber himself. Water and sewage companies (ABFA) can provide subscribers with services, such as issuing bills, with much greater ease and speed through dedicated web-based SCADA software. Android software for subscribers also provides the subscribers with the consumption information along with personalized recommendations for each subscriber through data mining.

**Annual Production Capacity:**

1,000 Devices

**Founded:**

2013

### Application:

In most industries in different areas such as water and sewage industry, smart building, production lines of various industries, etc.

*This product is final B2B and B2C equipment.*

### Technical Specifications:

- \* Low starting flow rate and high accuracy (class C)
- \* The ability to correct the error curves of multi-jet meters at low flow rates
- \* Ability to detect leaks using pattern detection technology
- \* The ability to detect manipulation and unusual uses
- \* The ability to detect burst pipes leading to the meter or failure of the meter itself
- \* Battery-independent power supply for up to 8 years depending on the frequency of data transmission
- \* Unlimited and free transfer of information to the Internet cloud server through the LoRaWAN platform in an encrypted form
- \* Ability to communicate with GSM/GPRS Gateway when the LoRa platform is not available.
- \* The ability to receive commands from the web-based central software to control the flow of water through the control valve or other related commands
- \* The possibility of receiving information and making adjustments locally (wireless) by BLE technology and special Android software
- \* Can be used as a prepaid meter
- \* In sizes of 0.5, 1, 1.5 and 3 inches in the form of standard dimensions of water meters of ABFA Engineering Company

### Advantages:

Lower price compared to similar foreign models

*This product is final B2B and B2C equipment.*



## ➤ Water Meter

◆ Acam Madar Asan Co.

[www.acammadar.ir](http://www.acammadar.ir)



### Product Introduction:

This digital flowmeter works with ultrasonic technology and has capabilities such as intelligence and sending information in different platforms and different output ports.

The mechanical part of the product consists of a plastic body made of ABS and a piece of brass (nut and ball) or cast iron (flange) and a venturi part. This product can be used for all liquids with low viscosity and similar to water (alcohol, gasoline, diesel, etc.).

### Application:

- \* Measuring the flow of fluids with low viscosity (such as water, gasoline, alcohol, etc.)
- \* Fluid flowmeter (water, oil, gasoline, diesel, milk, and any fluid with low viscosity)
- \* Separation of consumption and energy consumption of residential and industrial units
- \* The possibility of turning off and on the electric valve connected to the flowmeter
- \* Separation of water and energy branch connection
- \* Instrumentation laboratories
- \* Oil, gas and petrochemical industries and oil and gas fuel stations

#### Main Export Destinations:

The UAE, Oman, Iraq , Syria, Afghanistan and ...

#### Export History:

Up to 500,000 \$

#### Annual Production Capacity:

100,000 Devices

#### Founded:

2015

### Technical Specifications:

<b>Physical characteristics</b>	<ul style="list-style-type: none"> <li>* Size from 2 inches (DN50) to 12 inches (DN300)</li> <li>* Integrated cast iron body (epoxy paint 12 layers)</li> <li>* Flange fittings - PN16</li> </ul>
<b>Fluid specifications</b>	Fluid with low viscosity (pure water, oil, gasoline, Adblue, oil, paint, milk, etc.)
<b>Feeding specifications</b>	<ul style="list-style-type: none"> <li>* 3V 4Ah battery with a lifespan of 10 years</li> <li>* Capable of 220 VAC and 24 VDC mains electricity</li> </ul>
<b>Measurement accuracy</b>	<ul style="list-style-type: none"> <li>* Ratio <math>Q_3/Q_1 = 250, 400, 650, 800</math></li> <li>* Flow accuracy <math>\pm 0.2\%</math></li> <li>* Repeatability 0.015%</li> </ul>
<b>Smartification and sending information</b>	<ul style="list-style-type: none"> <li>* Sending information on all IoT platforms, including NB-IoT, LoRa, Sigfox, GSM (GPRS)</li> <li>* The ability to turn the solenoid valve off and on</li> <li>* It has water consumption monitoring and management software.</li> </ul>
<b>Display information</b>	<ul style="list-style-type: none"> <li>* Cumulative volume (m<sup>3</sup>, Lit, Gal)</li> <li>* Instantaneous flow (m<sup>3</sup>/h, Lit/min)</li> <li>* Fluid temperature (°C, °F)</li> <li>* Maximum daily flow and return flow</li> <li>* Cumulative hours of operation and hours of fluid passage</li> <li>* Warning of dryness, overuse, bursting, leakage, battery, manipulation, bubble and fluid return</li> <li>* Iranian and Gregorian clock and calendar</li> </ul>
<b>Features and facility</b>	<ul style="list-style-type: none"> <li>* Electric and battery-powered</li> <li>* Pulse output ports, RS485, RS232, MOD BUS, M-Bus, 4~20 mA</li> <li>* Ability to add pressure and temperature sensors and send their information</li> <li>* Not counting air and bubbles mixed with fluid</li> </ul>

### Advantages:

- \* The ability to detect a large volume of bubbles and air inside the fluid and not count it
- \* Wireless communication exchange by means of WiFi, LoRa, NB-IoT, SigFox
- \* The ability to display on mobile phones and personal computers and sub-metering
- \* Lack of mechanical parts involved with the fluid will not cause loss of accuracy of the counter mechanism during the life of the device
- \* The possibility of vertical, horizontal and angled installation



## ➤ Smart Elevator Panel Using Voice Recognition System

◆ Fanavaran Milad Ekhteraei Co.



### Product Introduction:

Using artificial intelligence in voice recognition, this panel allows the user to move to different floors by calling the desired floor without pressing the elevator buttons. People with disabilities or children will be able to use the elevator easily by using this system.

This system has been implemented in 10 common languages of the world and the Persian language. The desired technology is one of the leading and practical technologies in the elevator industry. The design and fabrication of the inside and outside cabin panels are equipped with a Farsi voice processing machine, the ability to process multiple languages at the same time, removing noise and extra sounds, periodic updates, compatibility with old cabins, online and local voice processing for when the Internet is down.

### Application:

This panel is used in the building industry to move the elevator without touching or pressing the floor button, just by calling the desired floor

#### Main Export Destinations:

Iraq, Persian Gulf neighboring

#### Export History:

Up to 500,000 \$

#### Annual Production Capacity:

1,000 Devices

#### Founded:

2020

*This product is a final B2B & B2C equipment.*

### Technical Specifications:

The final product is technically divided into two parts, inside and outside cabin panels, whose technical specifications differ.

#### \* Key panel of outside cabin:

- \* one Arduino Microcontroller based on AVR ATmega328 to check the status of sensors and make appropriate decisions
- \* two potentiometers (10K ohm) to adjust sensitivity and calibrate
- \* 12 resistors (330 Ohm) to adjust sensitivity and calibrate
- \* one infrared receiver to receive commands from the user
- \* four infrared transmitters to receive commands from the user
- \* 4 Green LEDs to show sensor activity
- \* 4 Red LEDs to show sensor activity
- \* two capacitors (100nF) to adjust sensitivity and calibrate
- \* one capacitor (100uF) to adjust sensitivity and calibrate

#### \* Key panel of inside cabin:

- \* one Raspberry Pi Element 14 Raspberry Pi 4 Model B is responsible for data processing and analysis.
- \* one condenser microphone: to connect to the Raspberry Pi to receive the user's voice
- \* 1 USB Type C power adapter to power Raspberry Pi
- \* 1 Micro SD 32GB class 10 memory card to boot the operating system and save data on the Raspberry Pi
- \* one 7-inch TFT touch screen to display Raspberry Pi images. This screen is not useful for elevator users and is only used for installation technicians.
- \* one mouse and one keyboard for technicians to access the Raspberry Pi and perform activities such as updating

### Advantages:

- \* Preventing the spread of diseases caused by hand contact with an infected object
- \* Fixed the problem of placement of elevator keys for skyscrapers and tall buildings
- \* Easy to use for children and people with physical disabilities
- \* Affordable price



## ➤ Video Door Phone

◆ Araye Sazan Mandegar Co.

[www.metavas.com](http://www.metavas.com)



### Product Introduction:

This product is a smart video door phone based on the implementation of various protocols for transmission of image and sound, such as the SIP protocol for sound transmission. This video door phone can be installed on several doors and can monitor the doors visually through the software.

**Annual Production Capacity:**  
1,000,000 Devices

**Founded:**  
2009

### Application:

- \* Remote door control with image and sound transmission
- \* Remotely opening the doors
- \* Entrance and exit doors and building security
- \* Storing the information of received images from daily trips
- \* Photographing and recording at horizontal angle (180 degrees) and vertical (90 degrees)

*This product is a final B2B & B2C equipment.*

### Technical Specifications:

- \* Central processor: H3
- \* Operating system: Linux Based
- \* Has the capability of USB camera installation
- \* Has a relay to connect to the entrance door (Solenoid)
- \* Has the capability of connecting to the home internet network through WLAN or LAN
- \* Implementing the SIP protocol on the SIP-ARM processor or one of the set of sound connection methods on the internet platform
- \* Streaming the image displayed by camera on the TCP and MJPEG Encoder protocol
- \* Optimization of video Encoding algorithm according to the IC processing power
- \* Streaming of sound and image on the internet platform
- \* Management panel (Web application) for required hardware settings
- \* Mobile software as a user interface
- \* The possibility of connecting a coding panel for use in complexes

### Advantages:

- \* The reverse-engineered German similar product within a year
- \* Very reasonable price compared to its German counterpart
- \* Using the right processor after checking different processors



## ➤ Burglar Alarm

◆ Anik Electronic Kavir Yazd Co.

[www.anikelectronic.com](http://www.anikelectronic.com)



### Product Introduction:

This system is a set consisting of a main board, expansion cards, sensors, operators and peripheral systems related to it for functions such as smartification, burglar alarm notification, remote control, remote monitoring, etc., through the network, GPRS, GSM, web, mobile applications and virtual network are used.

- \* Making calls, sending SMS, communicating through GPRS when alerted
- \* Has SD memory to store reports for several years
- \* Send status through Telegram bot
- \* Record and play sound
- \* Connection of 32 addressable modules including optical, magnet, smoke sensor, temperature sensor, keypad and...
- \* Automatic search for connected addressable modules
- \* Communication with system components through a dedicated serial port
- \* Anti-copy remote communication with -64bit coding

**Annual Production Capacity:**

40,000 Devices

**Founded:**

2016

### Application:

- \* Turning off and turning on electrical devices (smartification) in homes
- \* Starting or stopping equipment in industrial environments
- \* To allow personnel to enter different departments by deactivating the security system of that department and reporting the entry and exit of personnel in banks and homes.
- \* Providing a platform to control and monitor the security system of residential or commercial complexes or administrative organizations that have multiple branches and need to be monitored from one point.
- \* Intelligentization of greenhouses, agricultural fields, water wells, etc.

*This product is a final B2B & B2C equipment.*

### Technical Specifications:

Network boards with unique MAC Address and serial number

Device name	Working voltage	Power consumption	Weight
Main board	220 v	100 milliamps in normal mode and 1.5 amps in active mode	2960 g
Addressable keypad	12 v	300 mA	190 g
Network inter-face board	12 v	170 mA	45 g

### Advantages:

- \* Using asynchronous socket algorithm to increase the rate and reduce the response time of network software to messages sent from network boards connected to server software and preparation of relevant libraries in visual studio software
- \* Implementation of TCP/IP, UDP, HTTP, DHCP protocols completely on AVR and ARM microcontrollers

**International Standards or Permission:**

ISO 9001, ISO 1002, ISO 1004, ISO 45001, ISO 14001, CE



## ➤ Central Smart Alarm System with SIM Card Caller

◆ Basir Andishan Bina Tadbir Co.

[www.babt.ir](http://www.babt.ir)



### Product Introduction:

The intelligent alarm system is the main provider of security and protection of office and residential premises, which meets the major needs of users with various capabilities such as burglar alarm, fire alarm system, alarm module through telephone module and control of electrical appliances.

Basir Andishan Bina Tadbir company has produced a central smart burglar alarm device with a SIM card dialer using the latest technologies.

**Annual Production Capacity:**

20,000 Devices

**Founded:**

2019

### Application:

To control and monitor the movement of offices, residential houses, factories, etc.

*This product is a final B2B & B2C equipment.*

### Technical Specifications:

- \* Ability to control through Android and iOS applications
- \* Simultaneous operation with SIM card and landline
- \* It has 7 output relays to control electrical devices by setting permanent and instantaneous mode
- \* Recording 17 messages separately for wired and wireless zones
- \* Sound monitoring with the ability to install an external microphone
- \* City electricity warning (outage, connection and weakness by notifying the voltage)
- \* Warning at times of disconnecting telephone line, disconnecting AUX fuse, cutting off the battery
- \* Smart battery charging circuit to increase battery life by detecting battery status
- \* Simultaneous support with 315Mhz and 433Mhz frequencies
- \* 8 wired zones and 8 wireless zones with partitioning capability
- \* a dual core board piece without heatsink
- \* Use of 3-wire transformers, Phoenix connectors and insulated zones
- \* Control of 4 sections independently and simultaneously
- \* 20 remote memory and 64 sensor memory independently with individual numbers
- \* Notifying the remote number when locked and unlocked via SMS
- \* Notifying zone number and stimulated sensor via SMS
- \* 22 phone memory (10 SMS memory, 10 call memory and 2 cache memory)



## ➤ Video Surveillance Software

◆ Paya Hooshmand Rasad Co.

[www.rasadco.com](http://www.rasadco.com)



### Product Introduction:

Video surveillance systems are a set of CCTV cameras, storage device (DVD/NVR) and display for playback of stored images. Today, the use of video surveillance systems in all places, especially the areas where there are many people, has become a necessary and unavoidable matter. Controlling the performance of people and equipment, recording images of an unexpected event and monitoring expensive objects are only part of the goals of implementing a video surveillance system. This product is designed to manage surveillance camera images (showing and streaming images, recording and storing, replaying, etc.), manage monitoring centers, perform intelligent analysis, and manage events.

**Founded:**

2014

### Application:

Management of surveillance camera images in:

- \* Governmental bodies and organizations
- \* Control and monitoring centers of municipalities
- \* Security and military organizations
- \* Banks and financial institutions
- \* Factories and industrial units

*This product is a final B2B & B2C equipment.*

### Technical Specifications:

<b>Capabilities</b>	<ul style="list-style-type: none"> <li>* It has a central image streamer server with the ability to support standard protocols for transferring images over the RTSP, UDP, TCP and RTP network</li> <li>* Desktop/web and mobile version</li> <li>* Communication between independent servers (Federation)</li> <li>* Has Failover Server</li> <li>* Ability to create multiple servers (Server Farm)</li> <li>* Has management and control capabilities of the monitoring center</li> <li>* Has Event-Action Management subsystem</li> <li>* ONVIF protocol support</li> </ul>
<b>Programming language</b>	<ul style="list-style-type: none"> <li>* C#.net</li> <li>* C++</li> <li>* Java</li> </ul>
<b>Database</b>	<ul style="list-style-type: none"> <li>* MS SQL Server 2014</li> <li>* Sqlite</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>* WPF</li> <li>* OpenCV</li> <li>* Ffmpeg</li> <li>* gstreamer</li> </ul>
<b>Architecture</b>	<ul style="list-style-type: none"> <li>* MVVM</li> <li>* SOA</li> </ul>

### Advantages:

- \* Source availability without any security risks (penetration, etc.)
- \* Lower price than similar products





## ➤ Fusible Plug

◆ Imen Mahar Aria Co.

[www.imacofire.com](http://www.imacofire.com)



### Product Introduction:

The Fusible plug is a heat detector with pneumatic function. During fire, when the temperature reaches a certain value, the fuse alloy melts and the compressed air inside the air line on which the fuse is installed is released. The pressure drop of the air is detected by the pneumatic control panel and the fire extinguishing command signal is sent to activate the automatic fire extinguishing system. Fusible plugs are made for different temperatures according to the type of alloy used in them. Also, thermal fuses are made based on the pressure inside the air in two types, low pressure and high pressure.

**Annual Production Capacity:**

5,000 Devices

**Founded:**

2009

### Application:

In all places requiring water and foam fire extinguishing, such as refineries, petrochemical sites, oil platforms, terminals and oil tanks, chemical and cellulose industries warehouses, etc.

*This product is a final B2B equipment.*

### Technical Specifications:

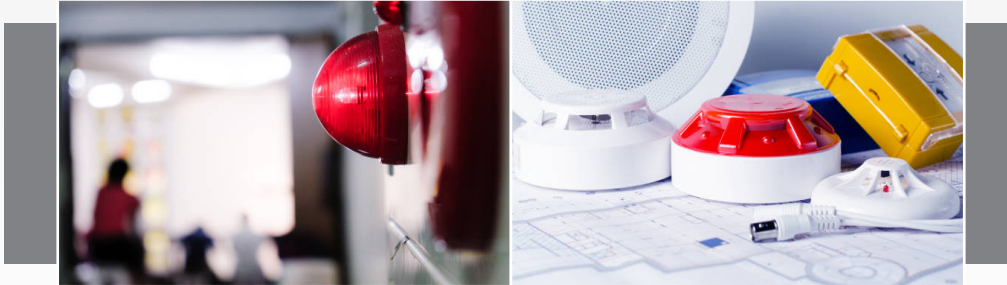
- \* **Connection:** thread NPT, 0.25, 0.375, 0.5, 0.75, 1 inch
- \* **Body material:** Brass, Bronze, stainless steel
- \* **Melting point (Celsius):** 64, 70, 84, 90, 95, 124, 138

### Advantages:

- \* The price is much lower than similar products
- \* Optimum performance accuracy

**International Standards or Permission:**

UL Certified by surwin quality certification



## ➤ Addressable Fire Alarm System

◆ 5oo7 Safety Consultants Co.

[www.5oo7.com](http://www.5oo7.com)



### Product Introduction:

The addressable fire alarm system must be installed and set up in all parts of the building to receive the end of the building work before operation. The main task of this system is to announce the occurrence of a fire audibly, and due to the addressability of the system, the address of the location of the fire can be seen on the central panel. This system can command other building safety systems, such as setting up the parking lot ventilation, setting up the positive pressure fan in the staircase, cutting off the gas, stopping the firefighter's elevator cabin on the ground floor, activating the telephone, activating the fire extinguishing system, etc.

**Annual Production Capacity:**

120,000 Devices

**Founded:**

2018

### Application:

Suitable for large projects, high-traffic and high-risk places, very large and crowded residential buildings, as well as places such as hospitals, hotels, and large shopping centers.

*This product is a final B2B & B2C equipment.*

### Technical Specifications:

- \* **Model:** A507 II & IO
- \* **Working voltage:** (7-24) VDC
- \* **Special specifications:** Current in normal mode: 1 mA - Current in fire alarm mode: 20 mA - Number of operation mode indicators: 1
- \* **Operating humidity:** 98% RH
- \* **Operating temperature:** -10 to 80 degrees Celsius
- \* **Degree of protection:** IP 30
- \* **Startup time:** less than 1 second
- \* **Weight:** 190 g
- \* **Dimensions:** length: 110 mm - width: 95 mm - height: 35 mm

### Advantages:

- \* Storage of the last 5 events in each element and a total of more than one hundred thousand events (taking into account the system's internal memory)
- \* Scenarioability (2 times the number of elements) and relay card scenario writing with each loop and separately
- \* System operation without problems if the elements are opened (alarm, push button, interface, detectors, etc.)
- \* Ability to maintain time for at least 2 years
- \* Has 507 specialized-exclusive software with free presentation (both English-Persian languages) and can be upgraded to all languages around world
- \* Has a central panel with a bilingual menu (English-Persian) and can be upgraded to all the languages around world (customized)

### International Standards or Permission:

- \* EN 54-17/18
- \* ISIRI 14459-18/17



## ➤ Building Management System (BMS)

◆ Aram Ramz Gostaran Co.

[www.argsecure.com](http://www.argsecure.com)



### Product Introduction:

“BMS” or Building Management System refers to the set of hardware and software that are installed for the purpose of integrated monitoring and control of important and vital parts in the building. The task of this set is to continuously monitor the different parts of the building and give orders to them in such a way that the performance of the different parts of the building is balanced with each other and in optimal conditions, with the aim of reducing unwanted consumption and allocating energy resources only to the tasks in hand.

BMS can include all electrical, mechanical and building protection services. These services include heating, cooling, air conditioning, elevator, emergency power plant, escalator, lighting control, CCTV, fire alarm, traffic control, etc.

**Founded:**

2007

### Application:

- ※ office and commercial, residential, hospital, hotel, sports complex, airport, livestock, warehouse, greenhouse, boiler room, data center, green space and parking
- ※ Integration of electrical and mechanical safety and security system facilities and equipment including: ventilation systems, chiller, boiler, fan coil, diesel generator, exhaust fan, jet fan, booster pump, water source, expansion source, image monitoring, elevators, stairs, escalator, lighting, sound system, network and data center, traffic control, fire alarm.

*This product is final B2B and B2C equipment.*

### Technical Specifications:

<b>Aggregate software</b>	<ul style="list-style-type: none"> <li>※ SCADA arg software</li> <li>※ Arg mobile application</li> </ul>
<b>Distributed control systems</b>	<ul style="list-style-type: none"> <li>※ 10 and 7 inch touch panels</li> <li>※ 3.5 inch touch panels</li> </ul>
<b>PLC programmable controllers</b>	<ul style="list-style-type: none"> <li>※ Super PLC organ with 52 channels</li> <li>※ 24-channel PLC</li> <li>※ 16-channel PLC</li> </ul>
<b>Direct control systems</b>	<ul style="list-style-type: none"> <li>※ Arg intelligent touch keys (light, curtain, dimmer, RGB, scenario, shade, etc.)</li> <li>※ Arg intelligent thermostat</li> <li>※ Smart 15-pole switch</li> <li>※ Arg’s multifunctional smart panel</li> <li>※ Smart video door phone</li> <li>※ Arg traffic control</li> <li>※ Sense Arg</li> </ul>

### Advantages:

- ※ Scalable implementation integration
- ※ Supporting industrial standard protocols
- ※ Implementation in RF and wireless platforms
- ※ Design and personalization in different uses
- ※ Lower price than similar products

**Application:**

Smartification of all buildings

## ➤ Building Management System (BMS) for Smart Home and Smart Building

◆ Hoopad Gostar Sanaat Co.

[www.hoopadgostar.ir](http://www.hoopadgostar.ir)

**Product Introduction:**

“BMS,” or Building management system, refers to the hardware and software installed to integrate monitoring and control of vital parts in the building. The task of this complex is to continuously monitor the different parts of the building and apply orders to them in such a way that the performance of the different parts of the building is balanced with each other and in optimal conditions, to reduce unwanted consumption and allocate energy resources only to under usage spaces. BMS can include all electrical, mechanical, and building protection services. These services include heating, cooling, air conditioning, elevator, emergency power plant, escalator, lighting control, CCTV, fire alarm, traffic control, etc.

These devices are designed and built to connect to the Control4 smart home system.

**Founded:**

2011

*This product is final B2B and B2C equipment.*

**Technical Specifications:**

All C-bus devices, such as the relay module, sensor module, touch keys, and all the equipment needed to make the building smart, have been produced.

**Advantages:**

- \* Lower price than similar products
- \* Powerful software



## ► Building Management System (BMS) for Smart Home and Smart Building

◆ Lian Zohd System Co.

[www.zohdiran.ir](http://www.zohdiran.ir)



### Product Introduction:

“BMS” or Building Management System refers to the hardware and software installed for integrated monitoring and control of vital parts in the building. The task of this complex is to continuously monitor the different parts of the building and apply orders to them in such a way that the performance of the different parts of the building is balanced with each other and in optimal conditions, to reduce unwanted consumption and allocate energy resources only to the spaces during operation. BMS can include all electrical, mechanical, and building protection services. These services include heating, cooling, air conditioning, elevator, emergency power plant, escalator, lighting control, CCTV, fire alarm, traffic control, etc.

**Annual Production Capacity:**

200 Devices

**Founded:**

2013

### Application:

- \* Apartment and villa residential buildings
- \* Gardens, halls, hotels, commercial and recreational complexes
- \* Office and commercial buildings
- \* stores
- \* Urban parks and public spaces (smart city)

*This product is final B2B and B2C equipment.*

### Technical Specifications:

<b>Central Touch Panel</b>	<ul style="list-style-type: none"> <li>* 7" color screen with 480*800 pixels quality</li> <li>* RS485 and 433MHz smart system protocols</li> <li>* Power supply 12 volts 2 amps</li> <li>* Aluminum frame - coloring</li> </ul>
<b>Smart Touch Key</b>	<ul style="list-style-type: none"> <li>* Relays with 250V &amp; 10A</li> <li>* Prepared in four versions, 2 bridges and 4 bridges - Lite and Pro</li> <li>* Has anti-scratch glass in different colors</li> </ul>
<b>Remote Control</b>	<ul style="list-style-type: none"> <li>* Effective range of 15 meters in indirect vision</li> <li>* Battery 3.7 V, 300 mAh</li> <li>* Atxmega32 processor</li> </ul>
<b>Android Application</b>	<ul style="list-style-type: none"> <li>* Communication with the central controller in the platform</li> <li>* Graphical interface of the GSM system</li> <li>* Completing part of the processing of the Smart building system</li> </ul>

### Advantages:

- \* Lower price than similar products
- \* Providing specialized services
- \* 3 years warranty



**Application:**

- \* Intelligent control of different parts of the building such as heating and cooling system and building doors
- \* Control of emergency situations in the building such as fire and earthquake

➤ **Building Management System (BMS)**

◆ Atieh Sazan Electronic Co.

[www.aetech.ir](http://www.aetech.ir)



**Product Introduction:**

Building Management System (BMS) or Building Automation System (BAS) refers to a system that is installed in a building and through its components, it enables the control of different parts of the building and the display of suitable outputs for the user. The various parts under the control of this system usually include mechanical installations and air conditioning system (HVAC) and lighting equipment, which can also be extended to safety systems, firefighting, access control, emergency power supply, etc. In general, the purpose of using BMS systems in a building is to adapt the working conditions of various components according to the environmental conditions and the building's needs at that time. In this system, many of the actions that residents do habitually and involuntarily are performed by intelligent systems that save time and manpower costs, and in addition, reduce energy costs, reduce errors, and increase the effectiveness of the system.

**Founded:**

2012

*This product is final B2B and B2C equipment.*

**Technical Specifications:**

<b>Integrated building control system software</b>	<ul style="list-style-type: none"> <li>* Remote control capability</li> <li>* Ability to manage access</li> <li>* Ability to communicate directly with tools</li> </ul>
<b>Central intelligent building control device</b>	<ul style="list-style-type: none"> <li>* Has wireless capability to communicate with the controller and sensors</li> <li>* Has an accurate clock</li> <li>* Has Wi-Fi connection to communicate with the server</li> </ul>
<b>Controller device</b>	<ul style="list-style-type: none"> <li>* Has three 10 Amp output relays</li> <li>* With relay status display</li> <li>* Has an internal watchdog</li> <li>* Has a wireless connection to communicate with the central system</li> </ul>
<b>Sensor device</b>	<ul style="list-style-type: none"> <li>* Has a PIR sensor input</li> <li>* Has a temperature sensor input</li> <li>* Has a motion sensor input</li> <li>* Has a humidity sensor input</li> </ul>



## ► Building Management System (BMS) for Smart Home and Smart Building

◆ Imen Pardazesh Madar Co.

[www.ipmadar.ir](http://www.ipmadar.ir)



### Product Introduction:

“BMS” or Building Management System refers to the set of hardware and software that are installed for the purpose of integrated monitoring and control of important and vital parts in the building. The task of this set is to continuously monitor the different parts of the building and give orders to them in such a way that the performance of the different parts of the building is balanced with each other and in optimal conditions, with the aim of reducing unwanted consumption and allocating energy resources only to the tasks in hand.

BMS can include all electrical, mechanical and building protection services. These services include heating, cooling, air conditioning, elevator, emergency power plant, escalator, lighting control, CCTV, fire alarm, traffic control, etc.

**Founded:**

2009

### Application:

In all houses and buildings for integrated management of all equipment and control over energy consumption

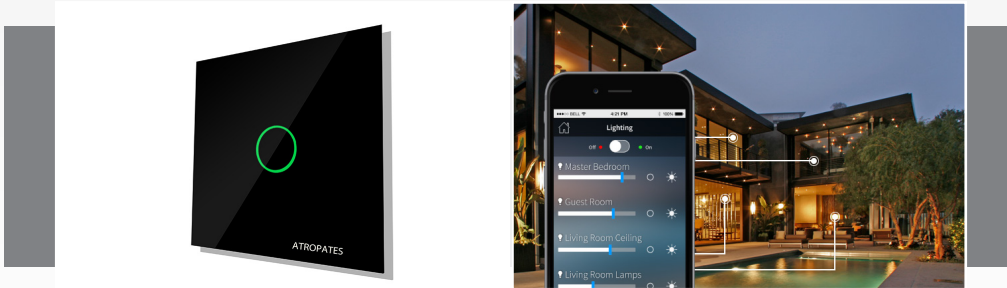
*This product is final B2B and B2C equipment.*

### Technical Specifications:

- \* 12-channel relay control board
- \* Based on SBUS protocol
- \* Fan coil control
- \* Lighting
- \* Electric curtain
- \* Short circuit protection circuit
- \* Intelligent touch control panel
- \* Controlling all facilities such as lighting, cooling and heating through a control panel with audio and video intercom capabilities
- \* 1 to 4 channel touch keys under RF, Wi-Fi and SBUS
- \* Motion sensor with music playback feature and programmable
- \* IP-GSM device to control equipment from network platforms such as LAN, Wi-Fi and GSM

### Advantages:

- \* Much lower price than similar products
- \* After-sales service
- \* Audio and video intercom communication capability under the network and SIP protocol
- \* Compatible with all similar systems



## ➤ Bluetooth-Based Smart Home Lighting System

◆ Arvand Electronics Atropat Group

[www.atropates.ir](http://www.atropates.ir)



### Product Introduction:

Atropat Electronics Smart Switch (Smart touch electric lighting switch) is a product that is used to control the lighting system by being placed in the box of traditional keys, without the need to change the wiring of the building. In this product, to control the lighting system, two touch methods are used on the key itself and remote control via mobile phone (in the form of direct or internet connection). This smart key has four single-bridge, double-bridge, three-bridge and four-bridge models.

### Application:

Smart lighting of places

**Annual Production Capacity:**  
100,000 Devices

**Founded:**  
2019

*This product is a final B2B & B2C equipment.*

### Technical Specifications:

- \* **Product size:** 50 × 80 × 80 mm
- \* **Product weight:** 140 to 165 g
- \* **Input supply voltage:** 85 to 265 VAC
- \* **Maximum output current:** 10A/channel
- \* **The working voltage of the electronic part and the output of the internal power supply:** 3.3 VDC
- \* **Main processing core:** ARM Cortex-M0
- \* **Processor frequency:** 16 MHz
- \* **Network frequency:** 2.4 to 2.5 GHz
- \* **Communication with the switches:** Capacitive touch and smartphone application (Bluetooth V5)
- \* **Working temperature:** -5 to +85 °C
- \* **Minimum version of the Android operating system to run the application:** 5.0.0
- \* **Minimum version of the iOS operating system to run the application:** 11.0.0
- \* **Materials used:**
  - \* **External body:** ABS and P.P. plastics
  - \* **Touch surface:** transparent crystal glass
  - \* **Input and output voltage terminals:** brass metal

### Advantages:

- \* Lighting control by mobile phone
- \* Touch access to lighting keys
- \* Smartening of places without the need to change the wiring and key box
- \* Communication and connection of smart home devices to each other
- \* Determining programmability and timing of lighting
- \* Increasing the number of bridges up to 4 bridges, which leads to a reduction in the number of keys in place
- \* Energy consumption management
- \* Ability to touch accurately and quickly and remove all types of analog, digital and radio noises
- \* The use of mesh topology, which significantly increases the antenna range and device performance speed.
- \* Efficiency of electronic switch instead of mechanical switch, which increases the maximum number of switches by 100 times.



Fifth Chapter  
Outdoor Equipment



# 5<sup>th</sup> CHAPTER

First Chapter

Second Chapter

Third Chapter

Fourth Chapter

FIFTH CHAPTER

## Outdoor Equipment

Flying Robot for Cleaning High-Rise Buildings | 218

Industrial Machine for Washing Vertical Glass and Negative-Slope Surfaces | 220

Sections

Facade washing Equipment ○



## ➤ Flying Robot for Cleaning High-Rise Buildings

◆ Simorgh Soha Flight Technology Co.

[www.simorghsoha.ir](http://www.simorghsoha.ir)



### Product Introduction:

The tall buildings washing flying robots can wash tall buildings' facades and different surfaces, including glass, stone, cement, brick, etc., with high-pressure water and nanomaterials. The electricity and water needed by this robot are provided from below (ground station), and it can continue to work for hours. The performance of this robot is such that it can clean the building much faster than the traditional washing modes by workers at height and with much higher quality. Also, this machine can fly with a battery, performing missions in patrol flights.

**Annual Production Capacity:**

80 Planes

**Founded:**

2009

### Application:

- \* Washing facades of tall buildings
- \* De-icing of high-pressure electrical insulators at different heights
- \* Washing advertising signs and elements in the city
- \* Imaging and patrolling from a high altitude
- \* Fire extinguishing of high-rise buildings
- \* Providing relief to injured people in the mountains (considering the possibility of carrying an ordinary person by a bird)

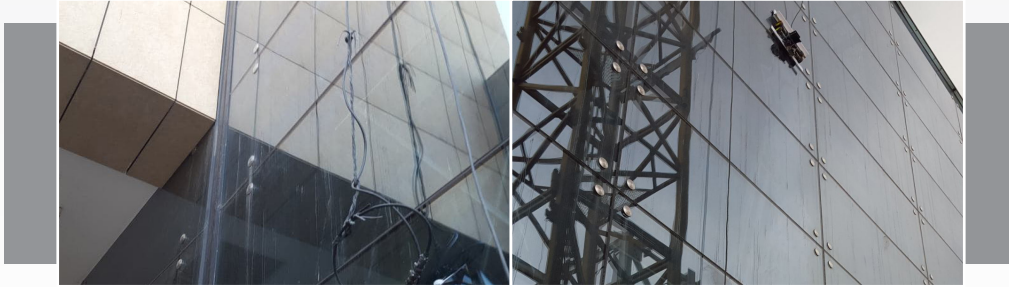
*This product is a final B2B equipment.*

### Technical Specifications:

- \* Access to a height of up to 200 meters
- \* Ability to carry cargo up to 80 kg
- \* Providing a high-quality image of 2 megapixels of the washing surface
- \* Overall dimensions of 1.5 × 1.5 meters
- \* The total weight of the product during the flight is 30 kg
- \* Height 80 cm from the ground
- \* Has eight powerful brushless motors
- \* All-aluminum frame with static furnace color coating
- \* The possibility of washing with water pressure of 10 to 150 bar
- \* Washing surfaces with a flow rate of 7 to 10 liters per minute
- \* 24-volt direct current working voltage of motors
- \* The working voltage of the ground station is 230 V, three-phase alternating current

### Advantages:

- \* Much lower price than similar products
- \* After-sales service
- \* Audio and video intercom communication capability under the network and SIP protocol
- \* Compatible with all similar systems



## ➤ Industrial Machine for Washing Vertical Glass and Negative-Slope Surfaces with External Driving Force

◆ Barsam Smart Systems Co.

**ROWIN**

### Product Introduction:

The glass-washing robot, with the ability to create a relative vacuum in a vacuum chamber between the robot and the glass, performs glass-washing operations. This relative pressure difference keeps the robot on the glass by applying a force perpendicular to the glass. This robot uses two sources of carrier detergent and washes the glass by spraying these detergents and using a brush. This robot is fully restrained by a safety stand on the roof of the building to prevent the robot from falling in emergencies.

**Annual Production Capacity:**

100 Robots

**Founded:**

2017

### Application:

Washing facades of glass buildings and glass houses

*This product is a final B2B equipment.*

### Technical Specifications:

- \* The ability to move on vertical and negative-slope surfaces
- \* Washing glass and non-glass facades

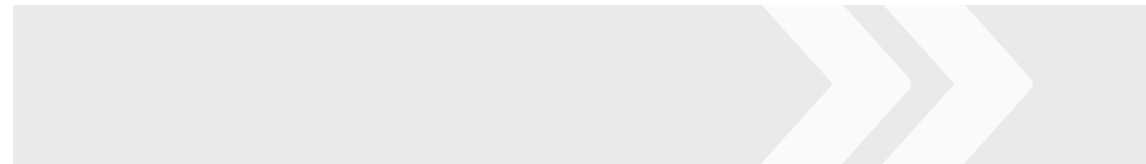
### Advantages:

- \* The ability to deploy for 30 minutes at any point of the building facade and perform various operations such as imaging and non-destructive tests
- \* Can be used to perform non-destructive tests in oil tanks



### **Iran House of Innovation and Technology (iHiT)**

Iran House of Innovation and Technology (iHiT) is one of the types of export intermediaries that launched under the auspices of the Vice President for Science and Technology in Kenya, China, Russia, Turkey, Syria and Iraq. In addition to accessing the export instructions, these houses provide variety of services for companies to enter the interactional service markets such as: private and shared workspace, permanent exhibition of products, finding business partners and investing in the target countries of export, company registration, product registration, medicine, medical equipment and trademarks registration, dispatch and admission of business delegations, hiring local specialists to present products and service.





## TEHRAN iHiT

**Manager:** Mohammad Karami

**Field of Activity:** Permanent International Exhibition | Export of products and services of knowledge-based, creative and technology companies in Tehran

**Country:** Islamic Republic of Iran – Tehran

### Services:

- Holding permanent exhibition of knowledge-based products and services
- Holding specialized events and meetings
- Providing dedicated and shared workspace in Tehran
- Identifying export opportunities
- Identifying opportunities for scientific, technological and industrial cooperation

**Address:** Hall 37A, Tehran International Exhibition, Tehran, Iran

**website:** [www.ihit-expo.com](http://www.ihit-expo.com)

**Tel No:** (+98) 912 444 9958 / (+98) 21 910 737 37

**Supervisor:** Mohammad Mahdi Agharafiee

**Office Phone:** (+98) 912 706 9611



## NAIROBI iHiT

**Manager:** Ali Baniamerian

**Field of Activity:** Export of products and services of knowledge-based, creative and technology companies

**Country:** Republic of Kenya – Nairobi

### Services:

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Providing export instructions of the Center for International Science and Technology Cooperation

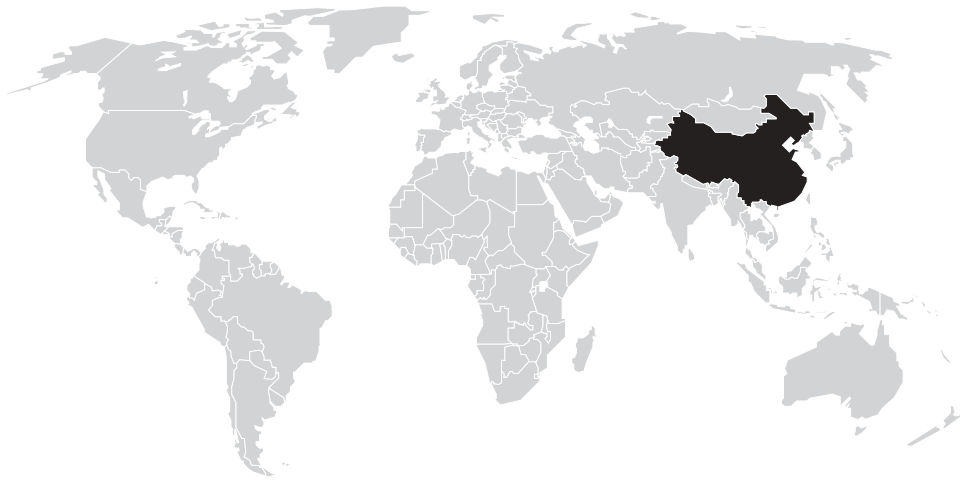
**Address:** Dennis Pritt Road, Next to Maalim Juma Road, Kilimani, Nairobi, Kenya

**website:** [www.ihit.co.ke](http://www.ihit.co.ke)

**Tel No:** (+254) 111 606 113

**Supervisor:** Fahime Zabihi

**Office Phone:** (+98) 21 910 700 80 INT 301



## SUZHOU iHiT

**Manager:** Amir Ghorbanali

**Field of Activity:** Export of products and services of knowledge-based, creative and technology companies

**Country:** People's Republic of China - Shanghai

### Services:

- Holding Permanent exhibition of products and services
- Export development of knowledge-based products
- Providing dedicated and co-working space
- Identifying opportunities for scientific, technological and industrial cooperation
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Providing export instructions of the Center for International Science and Technology Cooperation

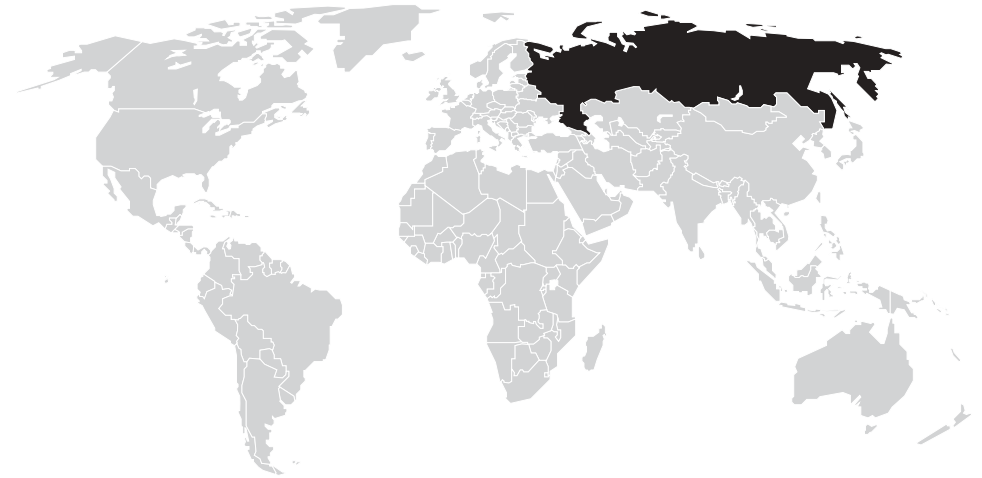
**Address:** Room 88 ,409 Keling Road, Advanced District, Suzhou, Jiangsu Province, China

**website:** [www.innotechexport.ir](http://www.innotechexport.ir)

**Tel No:** (+86) 182 062 123 92

**Supervisor:** Simin Rafeapour

**Office Phone:** (+98) 935 861 44 22



## MOSCOW iHiT

**Manager:** Mahdi Deilam Salehi

**Field of Activity:** Export of products and services of knowledge-based, creative and technology companies

**Country:** Russian Federation – Moscow

### Services:

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Providing export instructions of the Center for International Science and Technology Cooperation

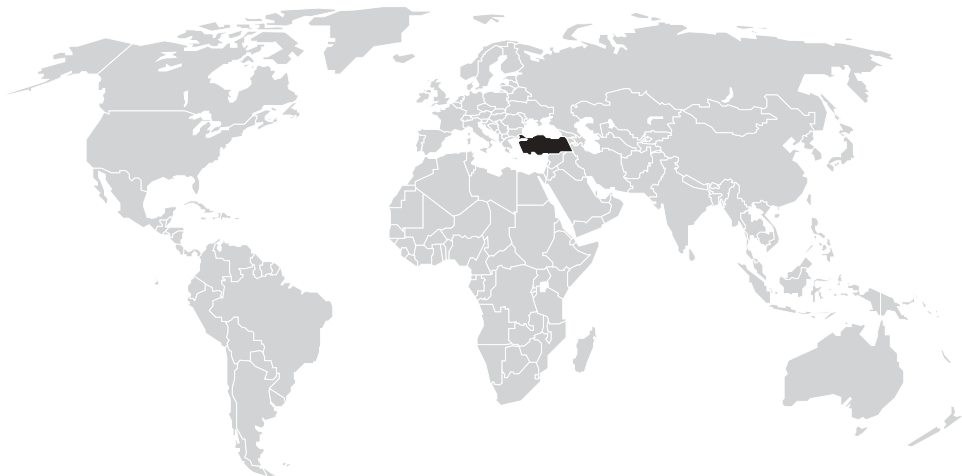
**Address:** No. 7, Unit 4, Arkhangelsky St., Moscow, Russian Federation

**website:** [www.ihit-ru.com](http://www.ihit-ru.com)

**Tel No:** (+7) 903 123 16 31

**Supervisor:** Malek Saeidi

**Office Phone:** (+98) 912 617 6293 | (+98) 21 860 537 15 INT 309



## ISTANBUL iHiT

**Manager:** Masoud Hasani

**Field of Activity:** Export of products and services of knowledge-based, creative and technology companies

**Country:** Turkey – Istanbul

**Services:**

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Providing export instructions of the Center for International Science and Technology Cooperation

**Address:** Halaskargazi, Halaskargazi Cd. No: 34371 ,66-38 Şişli/Istanbul

**website:** [www.istanbulihit.com](http://www.istanbulihit.com) **Email:** [info@istanbulihit.com](mailto:info@istanbulihit.com)

**Tel No:** (+90) 21 240 141 44 **Whatsapp:** (+90) 533 505 4589

**Supervisor:** Masoud Hasani

**Office Phone:** (+98) 21 882 227 55



## DAMASCUS iHiT

**Manager:** Mohammad Hadi Zeighami

**Field of Activity:** Export of products and services of knowledge-based, creative and technology companies

**Country:** Syrian – Damascus

**Services:**

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Providing export instructions of the Center for International Science and Technology Cooperation

**Address:** Damascus Freezone, Jamarag Sq., Damascus, Syria

**website:** [www.ihit.sy](http://www.ihit.sy)

**Tel No:** (+98) 918 693 39 33

**Supervisor:** Hasan Tahmasebi

**Office Phone:** (+98) 21 631 033 15





## Iraq (Sulaymaniyah) iHiT

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**Manager:** Hossein Salmani

**Field of Activity:** Export of products and services of knowledge-based, creative and technology companies

**Country:** Iraq – Sulaymaniyah

**Services:**

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Providing export instructions of the Center for International Science and Technology Cooperation

**Address:** Iraq, Sulaymaniyah, Sever St.

**website:** [www.abc-s.com](http://www.abc-s.com)

**Tel No:** (+964) 774 567 03 66

**Supervisor:** Mohammad Mahdi Alebouyeh

**Office Phone:** (+98) 939 124 5009



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