



KOHRANG INDUSTRIAL GROUP



High-tech Engineered  
Rubber and Steel Products

**KOHRANG**  
INDUSTRIAL GROUP

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



KOHRANG Lastic Co.



KOHRANG Baspar Co.



KOHRANG Niroy Co.



KOHRANG Research &  
Technology Co.



Sazandish Co.



Pars Bandar Co.



## Mostafa Ronasi, B.Eng., M.Sc.

President of KOHRANG INDUSTRIAL GROUP

Mostafa Ronasi, born in 1954 graduated in mechanical engineering from Amirkabir University of Technology (Tehran Polytechnic) in 1977, and received Master degree in Human Resource Management from Islamic Azad University in 2015. He is currently the president of the board of directors of KOHRANG INDUSTRIAL GROUP (KIG). The KIG is made of a number of companies including KOHRANG Lastic, KOHRANG Baspar, KOHRANG Niroo, KOHRANG Research and Technology, Sazandish, and Pars Bandar.

### Scientific and Professional Background:

- President of the board of directors of KOHRANG INDUSTRIAL GROUP since 1993;
- Recipient of Iran of "The Industry Creativity Award" at the 14<sup>th</sup> Kharazmi International Festival, for designing and manufacturing the largest shock absorber (Fender);
- Elected as "The National Entrepreneur of the year" and awarded by the president of Iran in 2010;
- Vice-President of Isfahan Province Chamber of Commerce, Industries, Mines and Agriculture;
- Board member of industries commission, Iran Chamber of Commerce, Industries, Mines and Agriculture;
- Board member of Directors of the Iranian Petroleum Industries Equipment Manufacturers Association;
- Board member of Isfahan school – Constructor benefactors association;
- Member of the Joint Chamber of Commerce, Industries, Mines and Agriculture of Iran and Russia;
- Member of the Joint Chamber of Commerce, Industries, Mines and Agriculture of Iran and Italy;
- Vice-president of the Iranian Association of Floating Equipment and Marine Structures;
- Board member of directors of Isfahan Province Industrial Towns Company;
- President of Policy and Monitoring Commission and journal chief editor of Isfahan province Chamber of Commerce, Industries, Mines and Agriculture;
- Achieving the First Place in the 1<sup>st</sup> Sheikhbahaee Entrepreneurship Festival, for designing and manufacturing the shock cell;
- Transferring the fender manufacturing technology to China, and the adoption of the technology of building-up the rubber dam from that country on a bipartisan basis;
- Producing and exporting fender to the UAE, Saudi Arabia, France and the most important international waterway, i.e. Panama Canal;
- Signing the Memorandum of Understanding (MoU) on cooperation of economic and technology transferring with the Malaysian Government's Operations Command Center with the presence of Malaysia's Minister of Economic Affairs and Finance;
- Chief operating officer for implementing the 42 Aghaz Dalan Gas Pipeline project;
- Managing director of Iran Kooch Co.;
- Production manager of Iran Schools Equipment Co.;
- Member of Iranian Marine Engineering Society;
- Member of Association of Industrial Directors;
- Member of Iran Quality Management Association;
- Member of the Chemical Engineering Society;
- Special member of Isfahan Province Industry and Mine Forum;
- Member of the Metal Industries of Isfahan Province;
- Member of the Supreme Association of Unions of the Employers of Machinery-Manufacturers and Council of Sheikhbahaee Entrepreneurship Festival;
- Member of the Strategic High Council of Innovative Technologies of Isfahan Province;

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## About Us

**KOHRANG INDUSTRIAL GROUP** established in 1986 consists of KOHRANG Lastic, KOHRANG Baspar, KOHRANG Niroo, KOHRANG Research and Technology, Sazandish, and Pars Bandar companies. Each company has individual attributes in terms of the background, services, and type of the activities and the whole group is managing by the board of directors. The industrial group operates in ten industrial sheds in a lot over 32,000 square meter located in Oshtorjan industrial zone, Isfahan, Iran produces various kinds of rubber, metal, and polyurethane parts to be used in civil, marine, steel, mines, and oil industries. The land area of this industrial group is about 32000 m<sup>2</sup> with almost ten roofed factories. Years of invaluable experiences, a team of highly skilled, dedicated and innovative personnel have enabled us to deliver solutions to the most demanding operational and technical challenges requested by the most discriminating national and international clients.

### KOHRANG Lastic Co.

Designs and manufactures heavy and super heavy rubber parts such as structural and seismic isolation bearings (i.e., elastomeric bearing, lead rubber bearing – LRB, and high damping rubber bearing – HDRB), elastomeric expansion joint, various kinds of marine fenders (i.e., rubber shock absorbers), frontal frame and its accessories, piggyback saddle, shock cell, rubber dam, rubber impact protection parts, roller rubber covering, hot and cold rubber lining of steel and concrete tanks, and rubber mill lining.

### Sazandish Co.

The projects conducted by this company are primarily by taking responsibilities for Engineering, Procurement and Construction (EPC) in the field of steel production complexes, dry dock gates, floating jetties (Pontoon), materials handling systems, dust collector purging systems, offshore structures, marine buoys, and vessel berthing equipment such as bollards, quick release, and fairlead.

### KOHRANG Baspar Co.

Designer and manufacturer of all types of oil and gas pipeline pigs, screens of mines and steel industry, and all types of industrial polyurethane parts.

### KOHRANG Niroo Co.

Engineering and installation of industrial factories equipment and constructing the oil and gas pipelines.

### KOHRANG Research and Technology Co.

Established to do research and develop the technologies of modern polymer industries, petrochemical, and manufacturing of the innovative and modern products.

### Pars Bandar Co.

Produces different kinds of industrial rubber products, rubber sheets, and all types of marine floating equipment.





## Vision

To be a world-class company in engineering products in all the industrial sectors by research and development, modern technologies, customer value and continual improvement to deliver long term and sustainable growth.

## Mission

Aiming to provide our products through innovative designs and state-of-the-art technologies to fulfill different design requirements and manufacturing high-tech engineered rubber and steel products based on international standards to have protected buildings, bridges, railways, mining, and other civil engineering constructions.

## Quality Policy

- We head towards the customers' satisfaction as our top priority by applying the principles of Total Quality Management.
- We strive to exceed customers' requirements.
- We seek continuous improvement through special attention to research, innovation, and development.
- We aim to maintain the integrity of Total Quality Management at all time complied with statutory requirements.

# WHY KOHRANG INDUSTRIAL GROUP?

- KOHRANG INDUSTRIAL GROUP is proud of creating distinction by a target-oriented team.
- KOHRANG INDUSTRIAL GROUP is flexible, adaptable and responsive because of its close partnerships.
- KOHRANG INDUSTRIAL GROUP accustoms its operating methodology to specific customer requirements.
- KOHRANG INDUSTRIAL GROUP works in a transparent way while respecting the highest integrity and quality standards.
- KOHRANG INDUSTRIAL GROUP does set the standards for its industry by permanently improving processes and products.
- KOHRANG INDUSTRIAL GROUP improves continuously the quality and transparency in all its operations.
- KOHRANG INDUSTRIAL GROUP reinvents itself everyday by being open minded and by actively listening to its colleagues, customers and other stakeholders.
- KOHRANG INDUSTRIAL GROUP strives to maintain knowledge as its merit key through continual improvement and ensuring every member of its team is trained and equipped based on the highest standards.
- KOHRANG INDUSTRIAL GROUP is trying to be pioneer in transferring and using modern technology of production.
- KOHRANG INDUSTRIAL GROUP is proud of employing talented staffs and capable of being a reliable support for the customers through new ideas and creative solutions.
- KOHRANG INDUSTRIAL GROUP is determined to provide the maximum efficiency and the best solutions for its customers.
- KOHRANG INDUSTRIAL GROUP always makes efforts to be prepared for facing variable challenges by adaptation and development along with modern technologies.
- KOHRANG INDUSTRIAL GROUP gives its specialized and valued human resource priority over any other resources.
- KOHRANG INDUSTRIAL GROUP is committed to provide complete solutions to all offshore & onshore projects through advanced engineering and innovation.
- KOHRANG INDUSTRIAL GROUP offers short lead times and fast delivery of its products.





# Elastomeric Bearing



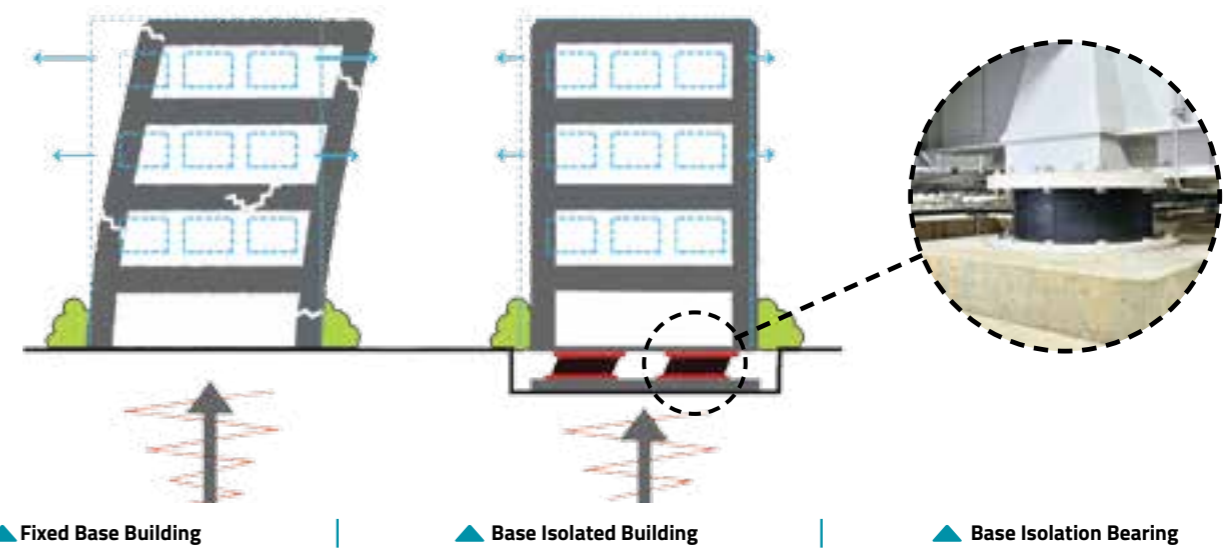
In order to bearing river, rail, and road bridges in any weather conditions and in many parts of the world, elastomeric bearings (i.e., the both natural and chloroprene synthetic rubber bearings) are presenting excellent services and demonstrating appropriate durability and efficiency. Compare to the alternative metal roller types, elastomeric bearings have distinct advantages such as easier installation, free from corrosion, and requiring no maintenance.

The natural rubber bearings allow the vertical loads (e.g., the dead load of the bridge deck and the live load of traffic on that) to be carried by the rubber in compression and the horizontal deflections (i.e., contraction and expansion) by the rubber in shear. The high vertical stiffness of the laminated rubber-steel bearings (natural rubber bearing) is achieved by the inserted horizontal metal plates, which do not have any effect on the required low horizontal stiffness.

The durability property of elastomeric bearings is achieved by either the low ratio of surface to volume of rubber or the inclusion of protective chemicals. The later increases the resistance to weathering. Regarding to the years of experiences, the service lives of large natural rubber components does not affect by weathering.

The system of laminated natural rubber bearing isolation is the forefront of these applications due to its lower cost and remarkable effect of mitigating the horizontal ground motion effects on superstructures. Its highly effective performance has been determined by the appropriate physical properties of natural rubber.

KOHRANG Lastic Company is the manufacturer of the biggest natural rubber bearing with the dimension of 900 × 900 × 378 mm in Iran and the Middle East. KOHRANG Lastic Company designs, manufactures, tests, and supplies the both natural and chloroprene synthetic rubber bearings with or without external steel plates to meet all international standards specifications such as; BS, EN, AASHTO, DIN, and ISO. The KOHRANG elastomeric bearings are unique and resistance in all weather conditions.



## ▼ Structural & Seismic Bearings

	
▲ Elastomeric Bearing	▲ Lead Rubber Bearing (LRB)
	
▲ High Damping Rubber Bearing (HDRB)	▲ Pot Bearing
	
▲ PTFE Sliding Bearing	

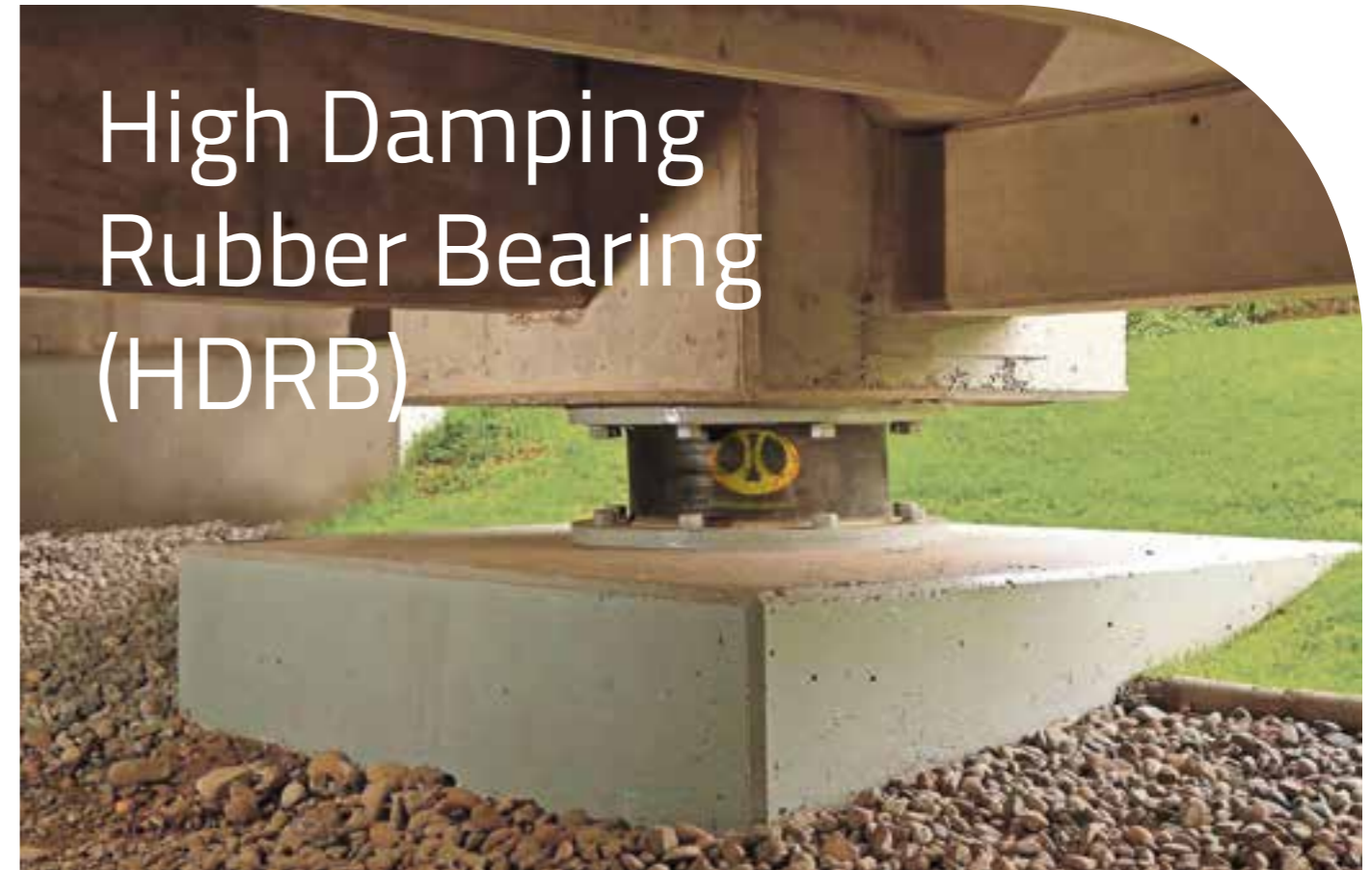




## Lead Rubber Bearing (LRB)

Lead rubber bearing as one of the well-known structural seismic protection devices works on the principles of base isolation and reduces the earthquake-induced forces transferred to the structure. Similar to regular natural rubber bearing, LRB consists of a laminated rubber and steel bearing with steel connection plates, but equipped by one or several energy dissipating lead cores. The weight of the structure would be supported by its high vertical stiffness characteristic provided by the thin layers of rubber reinforced by steel shims. The rubber layers act as spring and provide the isolation and re-centering the bearing after an earthquake event. The lead core(s) will undergo plastic deformation, generate heat, and dissipate the seismic energy during an earthquake. Due to the high absorption capacity of the lead cores with a minimum purity of 99.9%, they provide a high level of damping of up to 30%. Lead rubber bearings have found wide range of applications in structures. KOHRANG lead rubber bearings are manufactured using high quality elastomeric material, vulcanized reinforcement steel plates, and lead core(s). The bearings act as regular elastomeric bearings under normal conditions.

KOHRANG Lastic Company designs, manufactures, tests, and supplies Lead rubber bearings to meet all international standards specifications such as; BS, EN, AASHTO, DIN, and ISO. The KOHRANG lead rubber bearings are proven, safe, and versatile.



## High Damping Rubber Bearing (HDRB)

Base isolation technology is a solution for significant projects in high-intensity seismic regions such as Iran country due to the simplicity of its application, notable improvement of the structural seismic response, and long term economic benefit in that areas. The established and accepted technology of base isolation has been widely used in bridges and structures all over the world. Seismic (or base) isolation offers remarkable advantages compare to the conventional protection methods by reducing the earthquake-induced forces transmitted into a structure. Base isolation functions mainly based on increasing the structural natural period and reducing the transmitted earthquake-induced forces. Such a capability is significantly important for the buildings such as hospitals, emergency centers, museums, and advanced technology factories that need to have immediate occupancy seismic performance. It is worth pointing out that despite the need for more structural damping, seismic isolators are not basically absorbing the earthquake energy. Actually, they are providing an interface that causes the reflection of earthquake energy into the ground.

The interface of a base isolation that separates the superstructure (i.e., seismic isolated part) from the lower part of the structure requires the following characteristics:

- Low horizontal stiffness at design displacement;
- High vertical stiffness;
- Supporting the compression load of the structure weight over long term;
- Large horizontal displacement capacity during the design earthquake and supporting the vertical load simultaneously;
- Appropriate level of damping;
- Re-centering the structure after an earthquake;
- Damping and stable stiffness properties over long term;
- High initial horizontal stiffness to support wind excitations;
- Re-functioning after the design earthquake.

KOHRANG High damping rubber bearings work on the principles of base isolation and are simple, cost-effective, and maintenance-free and have the capability to support the design earthquake loads without significant damage. They are similar to natural rubber bearings (i.e., regular reinforced elastomeric bearings) with steel connection plates. The difference is the used elastomer material, which has a special composition and ability to dissipate seismic energy by generation of deformation and heat. The specific rubber layers of them provide the isolation and re-center the bearing after an earthquake event.

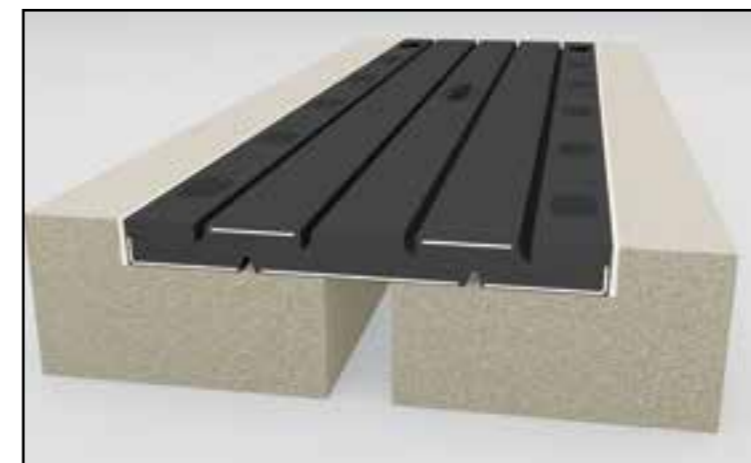
KOHRANG Lastic Company designs, manufactures, tests, and supplies high damping rubber bearings to meet all international standards specifications such as; BS, EN, AASHTO, DIN, and ISO. The KOHRANG high damping rubber bearings are adaptable, effective, and safe.



# Elastomeric Expansion Joint



Bridge expansion joints are installed between the bridge structure and its fixed sections at its both ends, absorbing the expansion and contraction of the bridges. They comprise steel angles and steel bridging plates coated with a special rubber or flexible elastomer. KOHRANG elastomeric expansion joints are designed and manufactured considering various kinds of steel and concrete bridges and their expansion or contraction level in summer and winter. They also adjust the transitional and rotational movements of the bridge structure. Considering the high costs of these parts' repair and replacement and also the related induced traffic problems, the quality and the service life of them are so important. The used elastomer materials are corrosive resistance against oil, hydrocarbons, salt, sand and abrasion. KOHRANG elastomeric expansion joints are capable to sustain the vehicles-induced horizontal loads as well as the movements without damaging the surface.





## Rubber Corner Guard

KOHRANG rubber corner guards are designed to protect the edges of columns in concrete structures in basement and other parking areas. The corner guards are manufactured using high impact resistant Styrene-Butadiene Rubber (SBR). KOHRANG rubber corner guards with the standard color of black and with yellow and green strip are available with or without galvanized iron insert clips in various sizes. They have the standard length of 1 meter or 1.2 meters. However, KOHRANG Lastic Company has the capability to produce other sizes on request. KOHRANG rubber corner guards meet all the international standards specifications and have good weather resistance, abrasion resistance, crack resistance, aging stability, and do not stain the vehicle.



## Rubber Wall Guard

KOHRANG rubber wall guards are designed to avoid structural damages from impact of trolleys and general warehouse traffic. The wall guards can also be used to protect corners and are manufactured using high impact resistant natural rubber. KOHRANG rubber wall guards are black in color and available with yellow and green strip. They have the standard length of four meters. The rubber wall guards are usually installed horizontally to a wall. They can also be placed in short vertical strip on flat or curved surfaces using fix bolt. KOHRANG rubber wall guards meet all the international standards specifications and have perfect impact resistance, weather resistance, abrasion resistance, crack resistance, aging stability, and are stain proof.



## Rubber Speed Humps



KOHRANG rubber speed humps are designed to reduce the vehicle's speed in order to have greater safety. They are manufactured using high impact resistant molded rubber. KOHRANG rubber speed humps are available in different sizes and have the standard length of 250 and 500mm. The rubber speed humps in either black or yellow color would be installed using fix bolts. KOHRANG rubber speed humps meet all the international standards specifications and have excellent abrasion and weather resistance quality.

## Rubber Stop Guard



KOHRANG rubber stop guards are designed to present appropriate energy absorption from vehicle impacts, thus avoiding the anchor bolts from impact-induced damages. Unlike the concrete stoppers where all the vehicle's impact-induced forces are transferred to the anchor bolts, the KOHRANG rubber stop guards protect the bolts from direct stresses. The rubber stop guards are manufactured using high impact resistant extruded rubber. KOHRANG rubber stop guards are black in color and equipped with yellow strip. In terms of base width and height they are available in various sizes. They have the standard length of 1800 millimeters. The rubber stop guards or wheel stoppers could be installed using winch anchors by putting countersunk in the stoppers. KOHRANG rubber stop guards meet all the international standards specifications and have excellent impact resistance, weather resistance, abrasion resistance, crack resistance, and aging stability quality.



# Rubber Waterstop

KOHRANG rubber waterstops are manufactured from the both natural and synthetic rubbers with many fillers and additives by the plastication, mixing, and compression molding processes. The rubber waterstops are mainly used in various concrete joints to prevent permeation and water leakage. They have excellent elasticity together with high resistance to water, corrosion, abrasion, aging, and tearing. KOHRANG rubber waterstops are suitable for the -45°C to +60°C temperature range. According to the utilized materials, the rubber waterstops can be categorized into natural rubber, neoprene rubber, nitrile rubber, and EPDM rubber waterstops. Each of these rubber waterstops would be applicable for specific condition. KOHRANG rubber waterstops meet all the international standards specifications and could be used for various concrete structures such as dams, bridges, tunnels, storage tanks, culverts, and waste water treatment plants.



# Tunnel Segment Gasket

KOHRANG Lastic Company is one of the region's leading manufacturer of elastomeric gaskets for bored, cut and cover, and immersed tunnels. KOHRANG tunnel segment gaskets, which are located in prefabricated grooves surrounding the contact faces of each segment, give a secure rubber-to-rubber waterproof seal as soon as the segments are attached together. Tunnel segment gaskets are significant components that ensure the life of any tunnel. Either the glued or anchored gaskets are available with width grooves from 26 to 44mm. However, KOHRANG Lastic Company has the capability to produce other sizes on request to meet specific design requirements. KOHRANG tunnel segment gaskets have good aging resistance, high compressive strength, and small compression set.



# Cone Fender



Cone fenders are the latest generation of cell fenders with a very complex shape. The conical shape has enabled the fenders to make the high energy absorption with reaction force ratio and to support a combination of axial, shear, and angular forces. These characteristics make them ideal where there are heavy blows due to vessel mooring. These fenders are designed in such a way that their excessive compaction is prevented. This feature of the cone fenders protects them from accidental damages completely.





# Cell Fender



Cell fenders are currently the most popular type of marine rubber fender being used all over the world. The most important factor of the popularity of this type of fender is the high energy absorption to reaction force ratio. Generally, a frontal frame would be installed on one cell fender. The size of the frontal frames is in accordance to the location and type of use. The most commonly usage of the cell fenders is in cargo ports. The high energy absorption with low reaction force, excellent multi-directional performance, easy installation, well shear force resistance, and robustness of these types of fender make them significantly suitable for different kinds of quays.



# Shock Cell



Shock cell as a type of marine fender is utilizing in the naval navigation system on the offshore platforms. Shock cell's structure is made up of two concentric steel tubes and a rubber layer in between, which act as the energy absorption system during the propulsion of oil and gas platforms. The elastic characteristic of the rubber layer causes the absorption and dissipation of the impact-induced kinetic energy and reduces the reaction forces. In the other words, the resulted impact loads are absorbed by axial deflection and rotation of the shock cell which is supported by its specially designed rubber layer as it undergoes shear and tension.

KOHRANG Lastic Company, based on the technical knowledge of its experts, has the capability of manufacturing shock cell and the other related products for berthing systems in offshore platforms. The company has produced and delivered shock cells for many projects in Iran such as the 13-17, 18, 19, 20, 21, 22, and 24-19B Phases of the Pars-e-Jonoubi, Farzad, and Froyan projects.





# V-Fender



The V shaped rubber fender that the most common type of that is known as Super Arch Fender has great performance and is being used in Iran and other parts of the world. According to the position of the berths and the specific requirement of use, they can be equipped with Polyethylene pad and frontal frames. V-fenders are especially suitable for open-type piers and have excellent low reaction force and high absorption. The wide choice of sizes and shapes of these types of fenders makes the flexibility to the consulting engineers to have the best selection. The V-shaped fenders can be installed vertically, horizontally, or even diagonally.



# D-Fender



These fenders are available in both DD and DC types, which have a D outer form with a D shaped center (DD type) and cylindrical center bore (DC type). These fenders are simple and have an easy installation. D-Fenders with customized sizes can be installed on either the wall of the quays or the floating vessels' body using chains, belt and bolts.





# Cylindrical Fender



Cylindrical fender is one of the most versatile types of marine rubber fender that has been in use for the longest period of time. They would be used in a variety of docks with different applications. Cylindrical fenders are well capable of absorbing loads and forces and their special simple form of installation has made them very desirable. This type of fender, as its name implies, is cylindrical and installed with chains, belts or brackets on the face of the quay. Cylindrical fenders are highly effective and appropriate for the protection of the quays for the berthing of any kinds of vessels. KOHRANG Lastic Company is able to manufacture a wide range of sizes and lengths of the cylindrical fenders according to the specific orders and based on the international standards.



# Shear Fender



Shear fender are used to absorb the mooring-induced impact loads to protect the both vessel and berth from damaging. The shear fender is unique due to its linear load-deflection characteristic in shear, and its stiffness in compression to support the axial heavy loads. These fenders are suitable for low energy applications and have easy installation. The steel plates used in these fenders are completely covered by rubber which prevents the corrosion of the plates and minimizes the maintenance costs. Frontal frames would be used in conjunction with the shear fenders.





# Rubber Dam



Rubber dams known also as inflatable rubber dams are long tubular-shaped fabrics being widely used as water control structures. They place across the channels, streams, and weir crest and would be inflated with air or water to raise the upstream water level. The rubber dam's membrane is made of a multi-layer fabric that contains strength canvas and three rubber layers (i.e., outer, middle, and inner rubber layers). The outer layer of rubber is designed to have excellent resistance to abrasion, heat, UV, and ozone. The middle and inner rubber layers protect the canvas that acts as the force bearing frame of the dam. In other words, the canvas provides great flexural stress resistance and superb adhesion function as well. KOHRANG rubber dams are in the both forms of air filled and water filled inflatable rubber dams. As their names imply, they would be inflated with pumping air and stabilizing water, respectively. Air filled inflatable rubber dams are more popular as they can be deflated and inflated quickly, and have high resistance to be frozen in cold weather.

## KOHRANG rubber dam's features

- Low cost in serviceability and maintenance periods
- Remarkable flexibility against external factors
- Considerable resistance to environmental factors such as water, pollutants, saline and alkaline waters, toxic residues, sewage, and acids
- Simple design, installation, and implementation
- 30 to 40 years lifetime based on the dams' operation in different parts of the world
- Easy and economical repair methods
- Without any longitudinal limitations and applicable for wide rivers
- Compatible with Environment friendly
- Low cost of implementation

KOHRANG rubber dams are considered to be a low cost, versatile choice to create poundage, flood control, suitable method for irrigation, and a technique to prevent dam overtopping as well as chemical spilling in the streams.



# Piggyback Saddle



KOHRANG Piggyback Saddles are applicable in the oil and gas industries. This product correctly places smaller pipelines on the main lines. In other words, the aim is to facilitate the installation of the pipe system at the either offshore or onshore areas. KOHRANG Piggyback saddle advantages:

- Flexibility that allows the movement and extension of the secondary pipeline
- Easy installation
- Resistance to sea water
- Fast implementation





# Roller Rubber Covering



The rubber coating of different types of rollers with the diameter of up to 2000 mm and 8000 mm length, being resistant to all acid-base environments, hydrocarbons, other solvents, chemicals and also with the capability to be used in different weather conditions, ozone rays, abrasion, heat and mechanical fluctuations have been manufactured and delivered by KOHRANG Lastic Company for various industries such as steel, cement, petrochemical, textile, foods, printing, and packing.



# Mill Lining



The mills used in different industries such as gold, lead, and zinc mines as well as the tile, ceramic, glass, and chinaware industries, due to high level of material abrasion, become resistant by special coverings which are made of stone, steel, cast iron, and rubber. In advanced industries and mines, the other types of linings have been replaced with rubber type as they have so many advantages. Therefore, to fulfill the needs of domestic and international industries, KOHRANG Lastic Company with experienced specialists and manufacturing facilities plus advanced laboratory succeeded to produce these linings with high service life.

### KOHRANG Rubber Mill Lining advantages:

- Reduction of noise pollution and dust in the work site
- Reduction of the system's wear and tear
- Reduction of the energy costs
- Fast and simple replacement
- Increment of mill capacity and production efficiency
- Reduction of wear and tear of grinding balls and bars
- Increase of the service life of the mill and its driving power





# Polyurethane Parts



The characteristics of polyurethane elastomers include a wide physical range of very soft and weak to extremely hard, high flexibility at low temperatures, excellent abrasion resistance and no substitute in abrasive and friction applications, high impact resistance, tensile strength and long elongation, excellent ozone resistance, energy dissipation due to high temperature stress (hysteresis), poor thermal conductivity coefficient and excellent resistance in the vicinity of oil derivatives. These are in comparison with other polymer groups, and thus, are used for a wide range of products. KOHRANG Baspar Company manufactures all types of polyurethane parts by hot and cold casting with quadripartite component machine, and the use of polyurethane materials proposed by European companies in the hardness range of SHORE D/A 10 to 95. KOHRANG Polyurethane parts include various types of screen with different meshes and all types of Hydrocyclone components such as scroll, apex, vertex, and intermediate cylinder. KOHRANG Baspar Company uses European raw materials, preferably French, English, German and Italian ones. These are very different from the raw materials of the countries of Southeast Asia or Turkey in terms of quality and price.

# Pig



A cylindrical device used in the transmission of fluid pipes such as oil and gas transmission, and the transfer of water and sewage. The high quality KOHRANG Pigs have so many advantages including recording pipeline geometric information, monitoring the pipe body, creating a physical separation between two different fluids, and cleaning the pipes. However, it is possible to use the Pigs without stopping the flow of fluid. KOHRANG Pigs function has been remarkably approved due to reduced cost of cleaning tubes and non-disruptive environmental impact. The Pigs have different types on basis of cleaning or blocking purposes such as Utility Pigs, Inline Inspection Pigs, Gel Pigs, Spherical Pigs, Geometric Pigs, Mandrel Pigs, and Foam Pigs.

# Rubber Selection Data Chart

	NATURAL RUBBER	SBR	EPDM	NEOPE-RENE CR	NITRILE NBR	PU
<b>Cost Factor</b>	1	1	1	2	2	3
<b>Hardness Range</b>	30-95°	40-95°	30-85°	30-90°	40-100°	10 <sup>Shore A-</sup> 85 <sup>Shore D</sup>
<b>Colors</b>	Full Range	Full Range	Limited Range	Full Range	Limited Range	Limited Range
<b>Heat Resistance (°C)</b>						
Maximum Continuous	75°C	85°C	130°C	95°C	100°C	130°C
Maximum Intermittent	105°C	115°C	150°C	125°C	130°C	150°C
<b>Low Temperature Resistance</b>	-60°C	-55°C	-50°C	-40°C	-20°C	-68°C
<b>Resistances</b>						
Oxidation	Fair	Fair	Excellent	Very Good	Good	Excellent
Ozone & Weathering	Poor	Poor	Outstanding	Very Good	Fair	Outstanding
<b>Oil Resistance</b>						
*ASTM Oil No. 1@20°C	Poor	Poor	Fair	Excellent	Excellent	Excellent
@100°C	Unsatisfactory	Unsatisfactory	Unsatisfactory	Good	Good	Good
*ASTM Oil No. 3@20°C	Unsatisfactory	Unsatisfactory	Unsatisfactory	Good	Excellent	Excellent
@100°C	Unsatisfactory	Unsatisfactory	Unsatisfactory	Fair	Good	Good
<b>Fuel Resistance</b>						
*ASTM Fuel B@40°C	Unsatisfactory	Unsatisfactory	Unsatisfactory	Poor	Fair	Good
<b>Chemical Resistance</b>						
Acids	Fair	Fair	Good	Good	Good	Weak
Bases	Good	Good	Good	Fair	Fair	Weak
<b>Physical Strength</b>	Excellent	Good	Good	Good	Good	Excellent
<b>Compression Set</b>	Good	Good	Good	Fair to Good	Good	Good
<b>Tear &amp; Abrasion Resistance</b>	Excellent	Good	Good	Good	Good	Exceptional
<b>Resilience</b>	Excellent	Good	Very Good	Very Good	Good	Excellent
<b>Permeability To Gas</b>	Poor	Fairly Low	Fairly Low	Low	Low	Fairly Low
<b>Flame Resistance</b>	Poor	Poor	Poor	Self-extinguishing	Poor	Poor
<b>Water Resistance</b>	Very Good	Good	Excellent	Good	Good	Excellent



# Dry Dock Gate



Dry dock is a structured area where the construction, repairs, and maintenance of the vessels would be conducted. This unique marine structure allows an area to be filled up with water that causes the vessels to be maneuvered in and out of the area. After that, once the vessel enters the dry dock, the gates will close and the seawater will be drained out. Then the hull and other areas of the ship which have been exposed to seawater for a long time are available for carrying out construction, repair, and maintenance works. SAZANDISH Dry Dock Gate with all the mechanisms of a ship would be placed in front of the repair and renovation dry dock. Before the ship enters the dry dock, the gate is filled with water by opening the seawater inlets. When the entire dry dock is filled with water, the ballast tanks of dry dock gate are drained, losing weight, and lightly floated.



# Floating Jetty (Pontoon)



A type of marine structure used at the locations with low water depth. They install alongside the passenger, cargo, and fishing quays, where various types of vessels berth at a pontoon to unload their passengers or cargos. Then, the unloaded passengers or cargos could be transferred by a ramp or other access ways to the in-land area. Floating jetties are applicable for sailing ports, and passenger, recreational, and fishing quays. The high quality SAZANDISH Floating jetties are easy to use, reliable, environmentally friendly, resistance to the most severe weather conditions, and require no maintenance.





# EPC Steel Making Plants



Sazandish Company with more than a quarter of century experience and possession technical knowledge is a leader in engineering, procurement, and construction (EPC) of steel making plants. For instance, Sazandish Co. has been elected as the main partner in Saba Steel Development Consortium by Mobarakeh Steel Company (MSC) to develop the plant capacity from 700,000 tons steel sheets to 1,700,000 tons/annum.





# Dust Collector System

The system is used to improve the quality of air exhaust from industrial and commercial processes by collecting dust and other environmental pollutants from the air or gas stream.

Based on its application, it has a variety of types: electrostatic filter, dust collector, filter bag, hybrid filter, air filtration, dry dust collector, wet dust collector, etc.

SAZANDISH dust collector systems would be used in cement factories, mines, iron mills, steel factories and others.



# Marine Bollard

Marine bollard is short and thick steel or iron post on quayside or the deck of a ship, designed for securing the ropes for mooring and other purposes. Sazandish Company offers a wide range of high quality bollards with different weights depending on the type of vessels in the side of the docks. SAZANDISH marine bollards are made under the relevant international standards.



# Materials Handling System



SAZANDISH materials handling systems used to transfer materials from one location to another (i.e., between a storage area and a loading dock or between several workplaces). According to the type of use, they would be categorized into chute conveyor, wheel conveyor, roller conveyor, chain conveyor, slat conveyor, flat belt conveyor, troughed belt conveyor, and so on. These types of materials handling systems are used to move materials over a fixed path. They could only be used when the volume of flow is sufficient to justify the investment of the fixed conveyor. Also, they are used when the materials are to be moved frequently between specific points. SAZANDISH materials handling systems are designed and manufactured based on all international standards and would be used in all mine plants, refineries, food processing plants, petrochemicals and so on.





# Laboratory



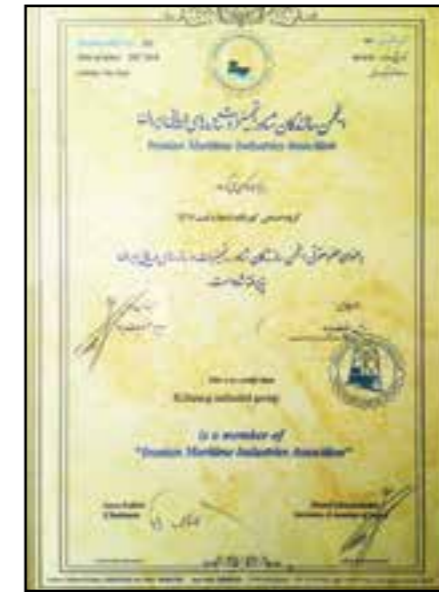
The KOHRANG INDUSTRIAL GROUP's modern laboratory has been established to meet the requirements of the production of polyurethane and rubber parts (the both industrial and marine types), and the needs to design formulations and control processes during production. The lab is equipped with software facilities and complete laboratory equipment for various tests including Rheometer, Tensile, Ozone, Compression Set, Resilience, Abrasion Resistance, Aging, Tear Resistance, Hardness, and well-equipped labs for chemistry and materials. It is worth noting that the calibration unit of this company continuously controls all the lab equipment and adapts them to global standards. KOHRANG INDUSTRIAL GROUP has been awarded with ISO 9002 certificate from D.N.V. International Institute , and also received the Certificate of Conformity of Product and its quality conformity with Japan's Bridgestone Company for all its products. The industrial group as the sole manufacturer of marine rubbers, rubber lining, and industrial rubbers is the only company recognized as the holder of this certificate in the Middle East.





# KOHRANG Certificates & Honors

KOHRANG INDUSTRIAL GROUP is proud of its many years of experience in producing various products needed for construction, marine, and the related industries. It has succeeded in obtaining many national and international certificates. The activity of this group and its subsidiary companies is based on the sustainable development and improvement of the quality of its products in line with the modern industrial technology. In this regard, KOHRANG INDUSTRIAL GROUP and its subsidiaries are conducting with extensive scientific researches, utilizing the knowledgeable engineers and designers, consuming the high quality materials, and applying the updated quality control methods, in order to be able to manufacture the products that are competitive with internationally acclaimed companies.





# Consider Us as Your Partner

In the industries with rapid progress and changes, choosing a company with the capability of providing most of the civil and marine products needed by the customers for a long time is very important. In this regard, KOHRANG INDUSTRIAL GROUP with strengthening the scientific foundation to ensure pioneering in the technological changes, always makes efforts to reach better position in its business line. Therefore, we are able to satisfy our customers with services more than their expectations. In other words, we consider the customers as our partners and fulfill our commitments clearly.

KOHRANG INDUSTRIAL GROUP follows the best ideals and the highest level of the customer's satisfaction. Aside the high volume of orders, the subsidiary companies of this industrial group try to deliver the orders in the shortest possible period of time and with the internationally accepted quality.

At KOHRANG INDUSTRIAL GROUP we invest time to understand our customers' requirements and business strategies in order to come out with the best possible service solutions to their existing and future needs. We do this based on our extensive experiences, innovative skills and commercial best practices.

The continuing growth of our broad service portfolio has enabled us to present an extremely wide range of solutions and products to the different markets. Our long-term client relationships demonstrate our perpetual commitment to come out with excellent services.



KOHRANG INDUSTRIAL GROUP

# Think Big & Make Your Dreams Reality

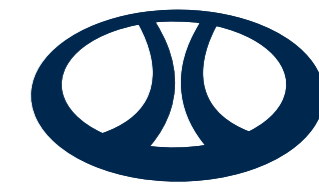
KOHRANG INDUSTRIAL GROUP thinks big and makes your dreams reality. A technical problem is a challenge for our team: what is the best way to satisfy you? We will always find the best solutions for your specific requirements, using our innovative minds, knowledge, and experiences.







www.kohranggroup.com  
Design by: Mh. Mohebbi



KOHRANG INDUSTRIAL GROUP



High-tech Engineered  
Rubber and Steel Products

**KOHRANG**  
INDUSTRIAL GROUP

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