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The modern urban life would be utterly impossible without underground infrastructure. Furthermore, it is becoming apparent that underground infrastructure system in the whole world, is substantially deteriorating as a result of age and increase in traffic loads. Additionally, the demand for sustainable and environmentally-friendly urban development is rising and this can pose a great challenge to local authorities.

Nowadays, the developed countries in the world are changing their old methods of sewage collection and waste-water treatment systems, with more convenient and better solutions. The polyethylene products (HDPE) have the major role in this change. The products made of polyethylene materials (Polyethylene pipes, Polyethylene drainage pipes, Polyethylene manhole, Polyethylene septic tank, and etc.) have proved, that they are the best choice for replacing the old concrete or metal pipes and canals used for urban and industrial sewage systems due to their advantages. Long lifespan, light in weight, quick and easy installation, resistance against corrosion and abrasion, are just some of the benefits of these products. Therefore, the countries which have the technology and the raw materials needed to manufacture these products, are now providing for their own needs and the other countries which are interested in these products.



The Rotengaran Parseh production group in Albroz province, started its journey since the year 2000 under the management of Mr. Mohammadreza AZIZI, by manufacturing corrugated spiral pipes in accordance with national standard 3-9116. Also, this company started designing and manufacturing polyethylene welding machine (Butt fusion) at the year 2001, and it has expanded the range of its products over the years. Since the very beginning, quality and technology innovation were Rotengaran's milestones, and time after time, these achievements have been more recognized by the global market. Our company is honored to pronounce that its products are in accordance with the worlds standards such as EN 13476-3 and DIN16961 for the polyethylene pipes, and also DVS 2201 and ISO 12176-1 for the polyethylene welding machines. The other polyethylene products of Rotengaran includes, Drainage pipe, Septic tank, manhole, and all types of corrugated pipes and fittings. The Rotengaran Parseh production group has earned the following certificates in accordance with the INSO 9116 (reference standard):

- The INSO 9116 national standard certificate for the double-wall polyethylene pipes
- The ISO 9001 international certificate of quality management system
- The ISO 14001 international certificate of quality management system
- The ISO 2008 international certificate of management system
- The ISO 17025 certificate of the approval of the lab
- The ISO 45001 certificate of health and safety management system
- The IMS (integrated management system) certificate

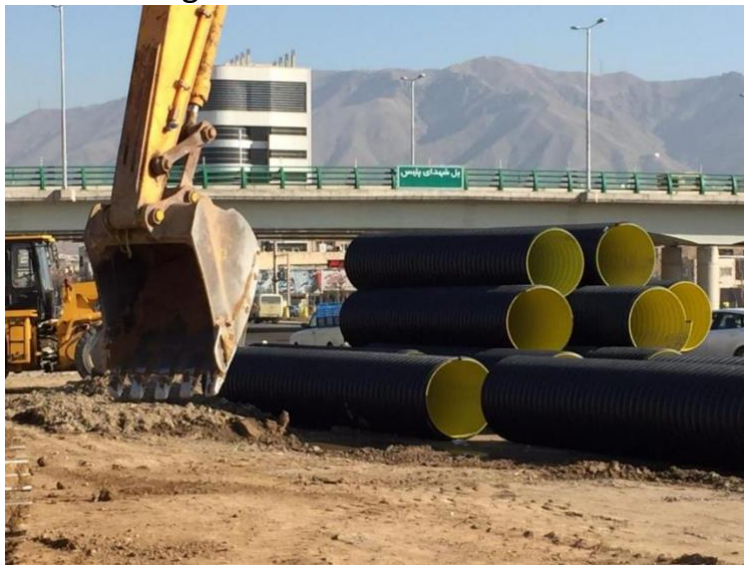


All the products of this company are manufactured in the most secure way with the best world's machinery. Nowadays, our products are being exported to many countries such as Turkmenistan, Iraq, Azerbaijan, Armenia, Afghanistan, Pakistan, Turkey, Italy, CIS countries, and etc. The Lab and QC unit of the company ensures the quality of the raw materials and the manufactured products for our dear customers. The laboratory section and the QC of the company have the ISO 17025 certificate of approval. This section is equipped with modern machines to inspect and control the raw materials, production process, and the finish goods. It is also a sure reference to be sure of the quality of the products. The QC tests are for the physical specifications of the products such as MFR, OIT, the amount of the soot, and the oven machine test. The tests related to the mechanical specifications of the products are for the ring stiffness, ring flexibility, impact test, and drag test. The professional and specialist group of the great company of Rotengaran Parseh believe that the constant monitoring of the production process in accordance with the technical standards, can improve the customer satisfaction.

The superior features of the products manufactured at Rotengaran Parseh:

1. The products of this company are made with HDPE materials which are resistant, and they don't react with different types of chemicals
2. Resistant against UV rays by using Anti-UV materials
3. Resistant against corrosion and chemicals

4. High strengthened crusts, the ability to get buried, and long lasting life
5. Ability to produce in different colors and dimensions
6. Flexibility, light in weight, and convenient transportation
7. Being portable even years after the installation and primary use
8. Quick in production and installation
9. Compatible to the soil movement
10. Capable of plastic weld
11. No need for construction at the project location
12. Resistant against abrasion and heavy loads
13. Resistant against corrosive substances (acids, salt, and bases) and microorganisms due to absence of nutritional value



The reputation of Rotengaran Parseh is the result of years of continuous efforts to maintain the quality of its products. Careful inspections, from raw materials to the finished products, has led to this point, that our products are among the bests in the world. Rotengran Parseh guarantees its products for 18 months, and provides after-sales services for ten years. This guarantee includes all tools and equipment, except for electrical equipment components, and is covered by the warranty from the date of delivery.

Rotengaran's duty of care towards our dear clients has created the new born Rothen Plast Fusion Operator School. This is a welding school with the goal of training qualified personnel and spreading the technical knowledge of Rothen Plast's equipment.



The Polyethylene Pipes

Polyethylene pipes, are a new type of plastic pipes that are made of HDPE, EX3 grade raw materials. Polyethylene is used in the manufacture of pipes and fittings for water supply, gas supply, and the urban and industrial sewage networks. The polyethylene material is available in different grades (PE63, PE80, and PE100) for different purposes. The pipes made from any of these materials have their own weight and bulk density, and each has its own characteristics. The polyethylene pipes have many advantages including, high flexibility, resistant against impacts and low temperature, resistant against acids and base fluids, easy to transport, quick installation, and etc.

Rotengaran Parseh is the largest manufacturer of these pipes with the highest quality in Iran. This company uses the best quality of raw materials, and the most modern machinery in producing the polyethylene pipes. Also, Rotengaran Parseh has achieved the international standard certificates for its products to ensure the dear customers about the quality of its products. Rotengaran Parseh is ready to provide its dear customers, the

best polyethylene pipes in various dimensions (from 16mm up to 2200mm) in Iran and other countries in the world. This company is now exporting its products to many countries such as, Iraq, Azerbaijan, Afghanistan, Turkey, Turkmenistan, Armenia, Australia, Italy, and etc. Our customer service unit, is ready to provide information about the products to the dear customers, as well as helping them to find the best products needed for their

project. Rotengaran Parseh is also offering recycled granules of polyethylene materials to the dear customers. You can also find more information about our products and services in our website.



The features of polyethylene pipe:

The polyethylene pipes can be the best choice for fluid transfer systems in various industrial projects, power plants, sewage networks, sprinkler irrigation systems, gas supply lines, and water supply networks.

These pipes are lighter in weight compared to the concrete and GRP type, and they are quick in production. Also, compared to the metal pipes, the polyethylene pipes are lighter in weight, more resistant against corrosion, and various fluids such as including acids and alkali. The cost of the polyethylene pipe is a lot better than other similar types. The polyethylene pipes have more mechanical strength, more flexibility, and more ring stiffness compared to UPVC pipes.

The polyethylene pipe (single-wall pipe, high pressure pipe, drip irrigation pipe) are made by extruding the EX3 polyethylene containing PE80 and PE100 materials.

Other additives such as granules and low quality materials are not involved in manufacturing these pipes. The same high-density polyethylene material gives the shape, appearance, and resistance at pressures of 4 bar, 6 bar, 10 bar, 16 bar in gas supply polyethylene

pipes up to 20 bar. These features make these pipes popular for gas supplying, drip irrigation system, and water supply systems. The HDPE pipe has a very good performance in mild temperate climates. The durability and performance of these pipes are

depending on the right engineering and correct installation.



The polyethylene pipe is one of the most used pipes which is made by high density polyethylene material (HDPE), with different grades of PE100 and PE80. These pipes are used in transferring water, gas, sewage systems, and any fluid or gas that wants to flow from a source to the final destination by passing a specific route.

Types of polyethylene pipes

The polyethylene pipes are in two types of single-wall (high pressure) and double-wall (for gravitational method). each type of these pipes is for a specific purpose. The single-wall type is used in water transferring, drainage systems, and protecting power cables. The double-wall polyethylene pipe is used in small and large water and sewage networks in gravitational method and without internal pressure.

The most important specifications of double-wall polyethylene pipes:

- Low roughness coefficient
- No clogging of the pipe due to sediments
- Resistant against solvents and chemical gases
- Lighter weight compared to similar concrete pipes
- No need for heavy machinery at the installation process therefore, it reduces the cost of the operation
- Lasting life with great service
- Production with up-to-date technology, and in quality

The applications of high pressure polyethylene pipes:

The high pressure polyethylene pipes have become so popular due to their applications. These pipes are being used in sewage networks (industrial, urban, and rural), natural gas transmission, pressured irrigation and sprinkler irrigation, mobile irrigation systems, drainage networks, and fluids systems.

The high pressure polyethylene pipe can often be used to transfer water with high pressure, specially on uneven and steep surfaces. These pipes are available in 6m and 12m in length, 10A and 16A in strength, and PE80 and PE100 materials. These pipes manufacture in different dimensions due to their application. These pipes are available in various sizes (16mm, 20mm, 25mm, 32mm, 40mm, 50mm, 63mm, 75mm, 90mm, 110mm, 125mm, 140mm, 160mm, 180mm, 200mm, 225mm, 250mm, 280mm, 315mm, 355mm, 400mm, 450mm, 500mm, and 560mm)

The application of polyethylene pipe:

The main application of polyethylene pipe is transferring water from outside or inside of the cities to the main pipelines. The type of polyethylene material used to produce these pipes, should be different than other polyethylene products. The polyethylene materials are in different grades, and each type of these materials are used for a different purpose.

The polyethylene pipes have more lifetime, easy installation, resistant against chemical fluids and the sunlight, with various fittings for different environments. These pipes are used in irrigation systems, sewage systems, transferring muddy water, chemical fluids, and high pressure gases with no pressure on the pipe.



Rothen Plast has been selected as the top manufacturer of double-wall polyethylene pipes for consecutive years. We hope to be the top exporter of high pressure single-wall pipes in Iran in the year 2021.

The Polyethylene Corrugated Pipes

Nowadays, the Reinforced Spiral Corrugated Pipes, are the best choice and a superb alternative to metal and concrete pipes in sewage networks, due to their high ring stiffness, resistance to acids and base fluids, resistance against corrosion, long lifespan, and etc. These pipes are made of HDPE materials, reinforced with steel which gives an outstanding ring stiffness to them. The reinforced spiral corrugated pipes are used in drainage systems, urban and industrial sewage networks, rainwater transmission, and ventilation systems.

Rotengaran Parseh is the largest manufacturer of these pipes with the highest quality in Iran. This company uses the best quality of raw materials, and the most modern machinery in producing the reinforced spiral corrugated pipes. Also, Rotengaran Parseh has achieved the international standard certificates for its products to ensure the dear customers about the quality of its products. Rotengaran Parseh is ready to provide its dear customers, the best reinforced spiral corrugated pipes in various dimensions (from 1000mm up to 2400mm) in Iran and other countries in the world. This company is now exporting its products to many countries such as, Iraq, Azerbaijan, Afghanistan, Turkey, Turkmenistan, Armenia, Australia, Italy, and etc. Our customer service unit, is ready to provide information about the products to the dear customers, as well as helping them to find the best products needed for their project. You can also find more information about our products and services in our website.



The Reinforced Spiral Corrugated Pipes

The Rothengaran Parseh manufacturer is the first and the greatest producer of Reinforced Spiral Corrugated Pipes, with PE80 and PE100 grade of raw materials in Iran. These pipes can be produced in 6m, 9m and 12m in length.

The type of the sheets used in the reinforced spiral corrugated pipes, are ST12 oily sheet and Z20 galvanized with thickness of 1mm. These pipes are being used in drainage system, transferring rainwater, and industrial and urban sewage networks.

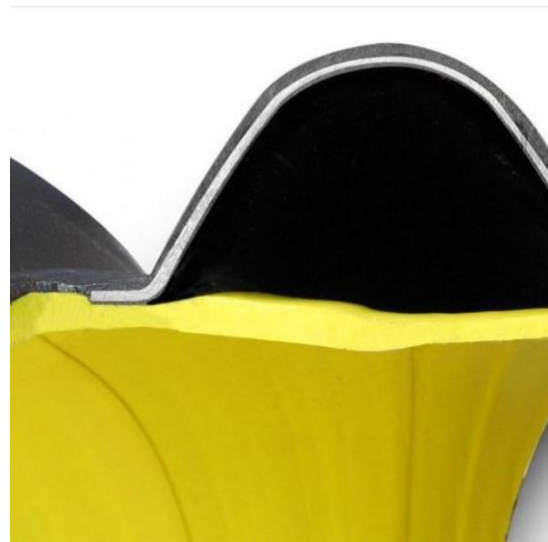
The reinforced spiral corrugated pipe is a 5 layered polyethylene pipe that has been strengthened with metal. These 5 layers are: Two layers of polyethylene glue, Black polyethylene layer, Oily or galvanized ST12 metal, and, The inner yellow layer in thickness of 1cm.

The reinforced spiral corrugated pipe has a high ring stiffness and it is really resistant against ground vibrations.

High Ring Stiffness

The highest ring resistance of sewage pipes with plastic wall, is 8SN. On the other hand, the polyethylene double-wall reinforced spiral corrugated pipe which is reinforced with steel, can easily provide 8SN, 12.5SN, 16SN and even more if needed. In other words, these reinforced pipes can easily resist against corrosion because of its composite texture (steel and plastic).

The Rothengaran Parseh's reinforced spiral corrugated pipe, has the certificate of 18781 Iran's national standard, and also its being manufactured in accordance with ASTM-F2435.



Drainage Pipes

The excess water on the ground can lead to many problems such as decreased production and the soil erosion in the agricultural and sports sectors. Therefore, an effective drainage system is a vital component of any surface water management plan.

The Drainage Pipes of Rothen Plast are used in sports turf, Foundations of buildings, highways, and farmlands. Rothen Plast manufactures these pipes in different dimensions and with or without filter.

The drainage pipes are manufactured in two types of UPVC and Polyethylene. The Rothen Plast production group, is the greatest producer of these pipes in Iran.

Drainage pipes are produced and supplied according to German DIN1187 standard and Iranian national standard number INSO7669.

The quality control unit and laboratory of this company controls and examine the production process of the products and the raw materials.

The main applications of drainage pipes with filter are as follows:

1. Removing water from leaching saline lands and turning lands into arable farms
2. It maintains the quality of the soil by removing excess water caused by rainfall and irrigation on farms

3. Removing excess water from buildings to prevent demolition



The Polyethylene Septic Tank

There are different types of septic tanks, as well as different materials. The Polyethylene Septic Tank is one of the most widely used types of septic tanks. Polyethylene septic tanks have a longer lifespan than other types.

Also, the polyethylene septic tank has a lower weight due to its body material that is made of polyethylene, the total weight of the whole structure is much lower than other types. Therefore, the transportation and installation of

these septic tanks is more convenient compared to other types, and the installation can be done by a low power crane. The body of the polyethylene septic tank is very resistant to chemical gases produced in the tank, and it prevents the leakage of these gases.



Repairing of this type of Septic tank is much easier due to the type of polyethylene materials used in it, and in case of problems, its repairs will be quick and with low cost. This is an important point in the selection of polyethylene septic tanks. Also, The polyethylene septic tanks are very easy to install compared to other types, and they can be operated in a very short time. We, at Rotengaran Parseh, have provided the most variety of polyethylene septic tanks for our dear customers, and we are proud to say, that we produce the most standard septic tanks in the market with the help of specialized personnel, and experienced engineers. Rotengaran Parseh is the largest manufacturer of the polyethylene septic tank with the highest quality in Iran. This company uses the best quality of raw materials, and the most modern machinery in producing these tanks. Also,

Rotengaran Parseh has achieved the international standard certificates for its products to ensure the dear customers about the quality of its products. Rotengaran Parseh is ready to provide its dear customers, the best polyethylene septic tanks in various dimensions and design in Iran and other countries in the world. This company is now exporting its products to many countries such as, Iraq, Azerbaijan, Afghanistan, Turkey, Turkmenistan, Armenia, Australia, Italy, and etc. Our customer service unit, is ready to provide information about the products to the dear customers, as well as helping them to find the best products needed for their project. You can also find more information about our products and services in our website.



Types of Polyethylene Manholes

- Rotary molded polyethylene manhole
- Hand made polyethylene manhole

The Rothen Plast's polyethylene manholes are manufactured in 31.5 kN and 64 kN of ring stiffness, and different diameters of 60 cm, 100 cm, 120 cm, and 150 cm. The polyethylene manholes can be produced in different heights from 80 cm up to 12 m.

The diameters of the polyethylene manhole

- The 1000 mm polyethylene manhole
- The 1200 mm polyethylene manhole
- The 1500 mm polyethylene manhole
- The 2000 mm polyethylene manhole

The polyethylene manhole can be manufactured in different colors. The light colors are common for these manholes so the video metric process can be done in a more convenient way. In all types of manholes, the steps should be installed so the operators can have access inside of the manhole.

Hand made polyethylene manhole

There are no triple parts in the handmade manhole.

The corrugated pipes are used in the design of the handmade manhole. The end of the pipe is the base of the manhole, and the outlet is around the pipe, and the top of the pipe is the taper of the manhole.

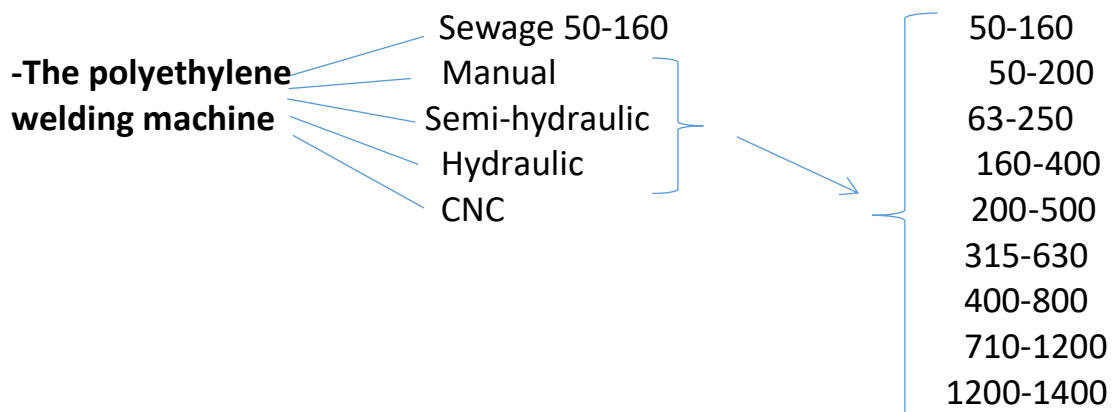
The price of the manhole (taper, raiser, and base)

The price of the manhole is depending on the needed volume and height. The height of the manholes are from 45 up to 90 in huge projects. The production of the large size manholes are the speciality of Rothen Plast. Contact us for more information and advice.

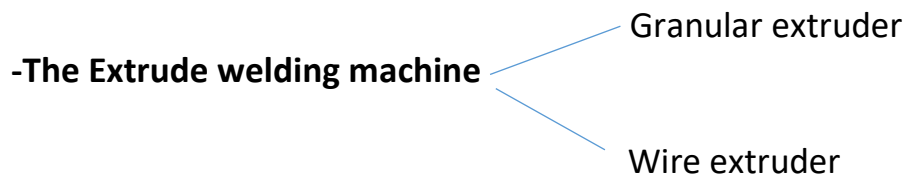


Welding Machine

The Rotengaran production group, is the largest manufacturer of polyethylene welding machine (Butt fusion) up to 1600mm in diameter. This company is also proud to announce that its polyethylene welding machines (butt weld method) are manufactured with the latest technology in the world and up to date design. The polyethylene welding machines of this company are divided into three categories and are as follows:



-The Electrofusion welding machine



All machines are produced by the best and high quality raw materials in the market. Reasonable price, superior quality, warranty and ten-year after-sales services have attracted the confidence of our dear customers. Please send your comments and suggestions via email and help us provide the superior products and more valuable services. The use of PE pipes for gas supply networks, has been around in the

world since about 1960 and, even before that, they were being used for water supply networks.



Nowadays many countries in the world are using the polyethylene pipes for their water and gas supply networks, due to the advantages and benefits of these pipes.

Some of the benefits of these pipes are as follows:

1. Long working life
2. Quick and easy installation
3. Light in weight and easy to transport
4. Resistant against corrosion and no need for coatings and cathodic protection systems
5. Quick and easy welding process
6. Ease of maintenance and repair
7. Affordable prices

