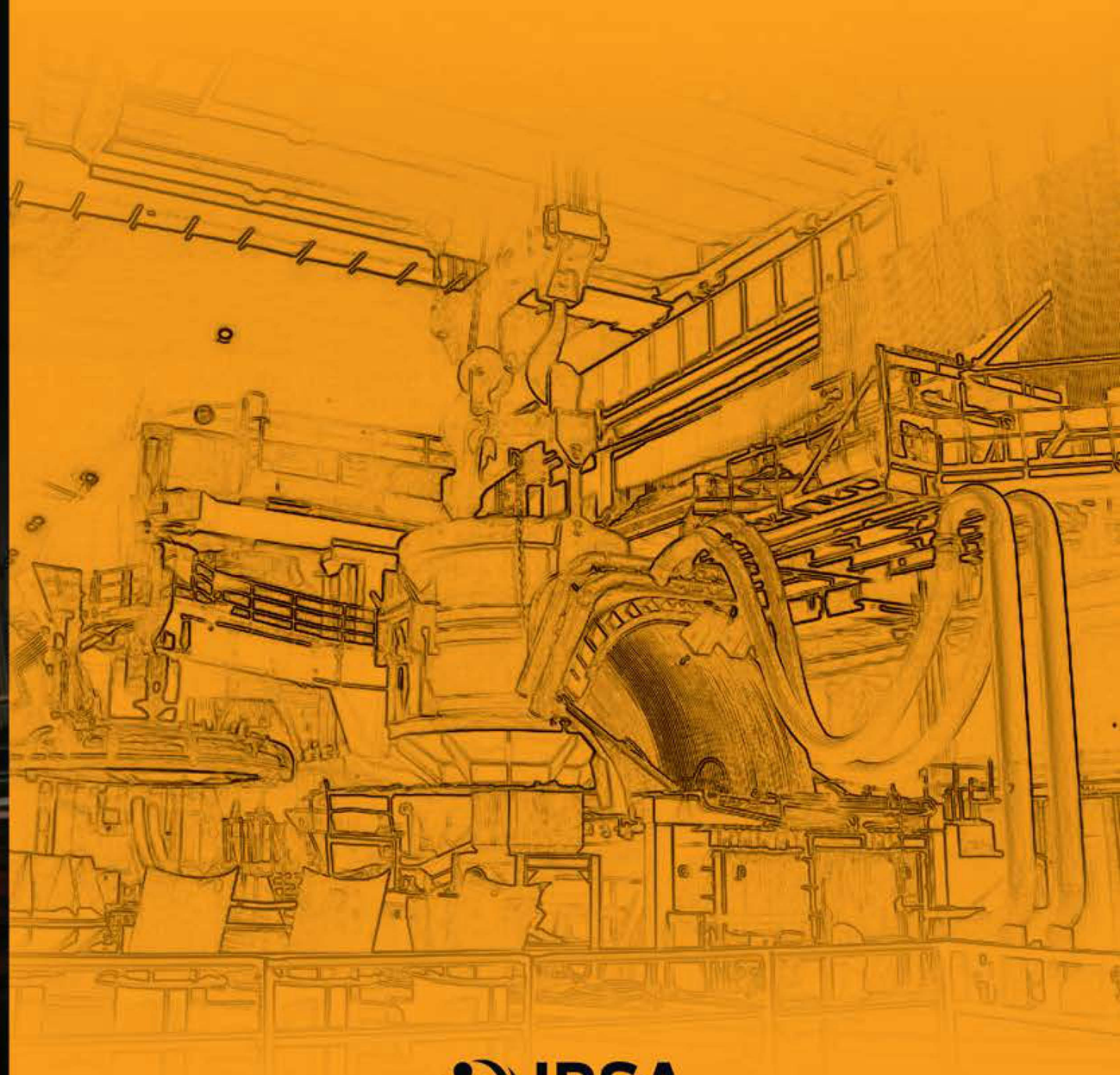
IRSA

Pooladtajhiz CO.



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Poolad Tajhiz

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POOLADTAJHIZIRSA

IRSA

Irsasteel Co.

About us

Irsa Steel Company, which started operating as an industrial group in 2005, has started operating in 2014 as a special joint stock company under the name of Irsa Steel with the following goals:

-Supply of parts, optimization of production lines and increase of efficiency in the steel industry

- Providing services in the fields of design and engineering, supply, construction, installation, commissioning and operation in various industries and specifically in the steel industry

-Providing commercial services in the field of import of raw materials and equipment as well as export of products and services

Irsa Steel Company, with the use of efficient personnel and a set of specialized machines and equipment, has successfully completed or is implementing projects in the steel industry at the desired time. Commitment and adherence to professional principles, quality improvement and project management in a coherent system has paved the way to achieve the main goals of the company.

Certificates and confirmations

-operation license of Industrial and Mineral Research Center Establishment

-competence certificate of the contractor from the plan and budget organization

-Operation license and establishment of engineering technical unit

-Member of knowledge-based companies

-several patent certificates

-Member of Iranian Iron and Steel Association

-CE certified (Export to Europe)

-Business Card

-Contractor safety competence

-Member of Isfahan Scientific Research Town

-ISO 9001 certification

-ISO 45001 certification

-ISO 14001 certification

-IMS certification


SZUTEST

CONFORMITY CERTIFICATE
UYGUNLUK SERTİFİKASI

SEP-2134001


کواهی نامه ثبت اختراع


کواهی نامه ثبت اختراع


ISO 45001

CERTIFICATE of REGISTRATION

Product Tajhiz IRSA Engineering & Manufacturing Co.

R & D Research & Development

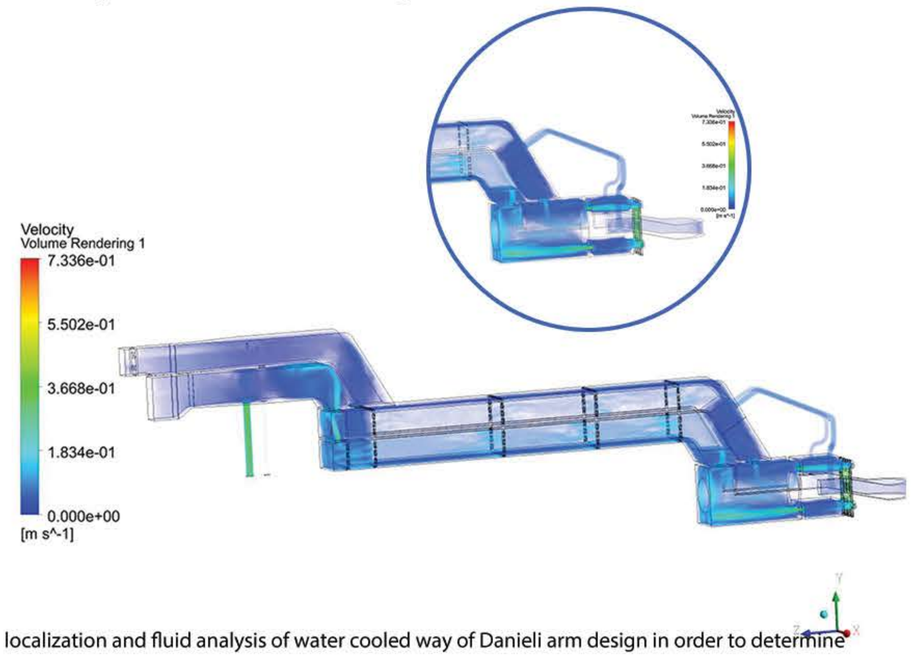
Research and Development

Irsa Engineering and Research and Development Department is composed of experienced experts in the country's steel industry in the fields of industrial design, energy conversion, manufacturing, metallurgy and instrumentation, civil engineering and architecture.

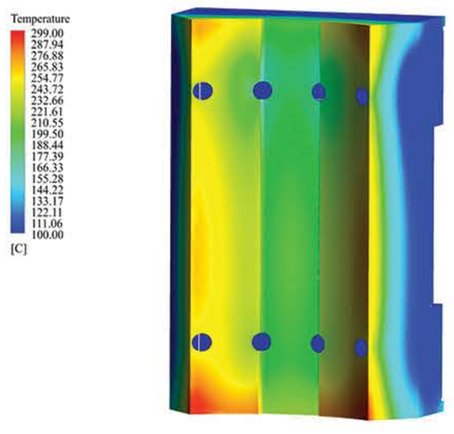
Technical office experts using up-to-date engineering design and analysis software such as: SOLIDWORKS، AUTOCAD، ANSYS FLUENT، ABAQUS and SIMUFACT

Laboratory and software site

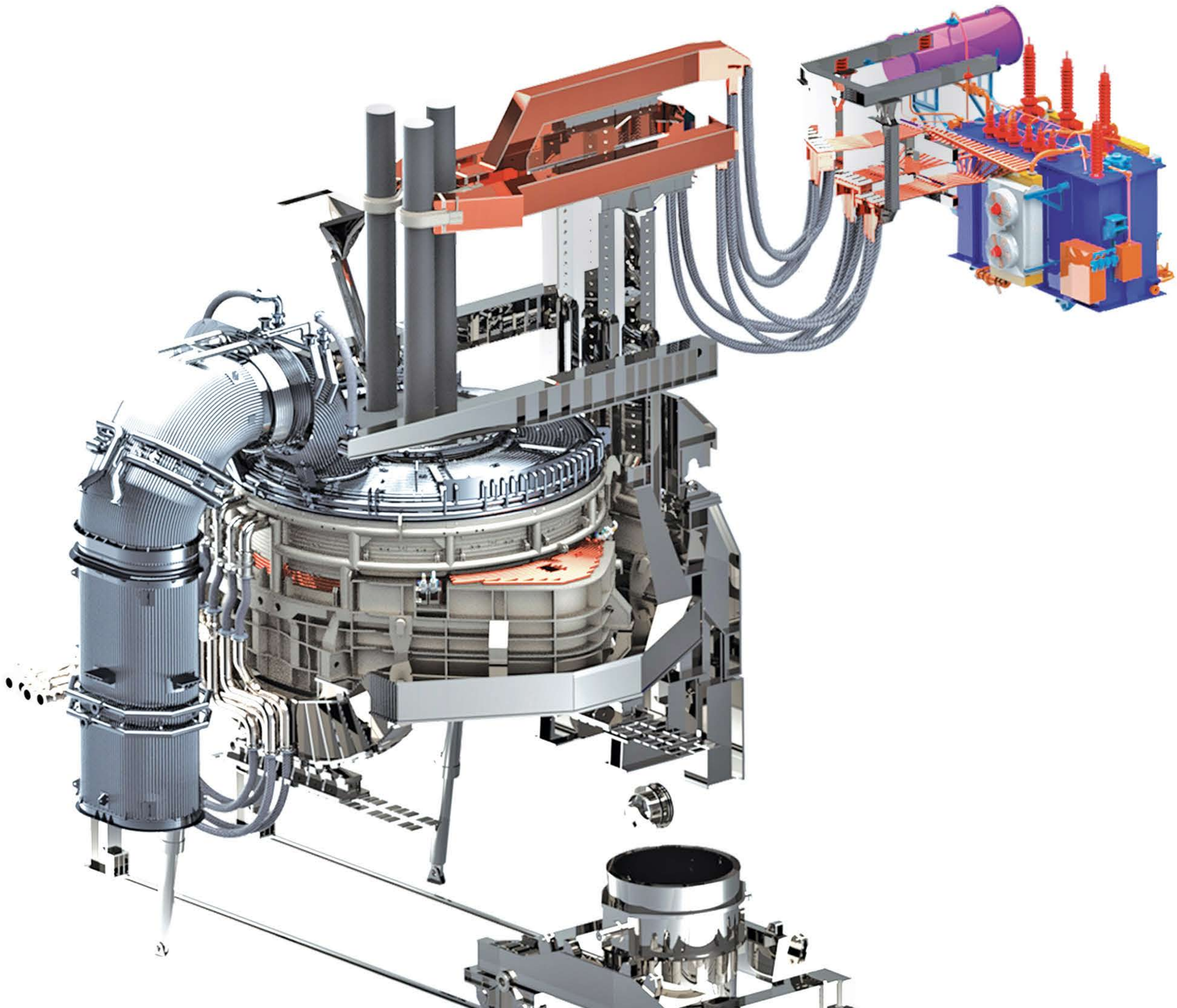
Irsa Steel Company has signed a cooperation agreement with Najafabad University Laboratory, which is one of the most advanced fluid and heat transfer sites in Iran, to carry out its tests and researches and uses the facilities of this laboratory to advance its goals.

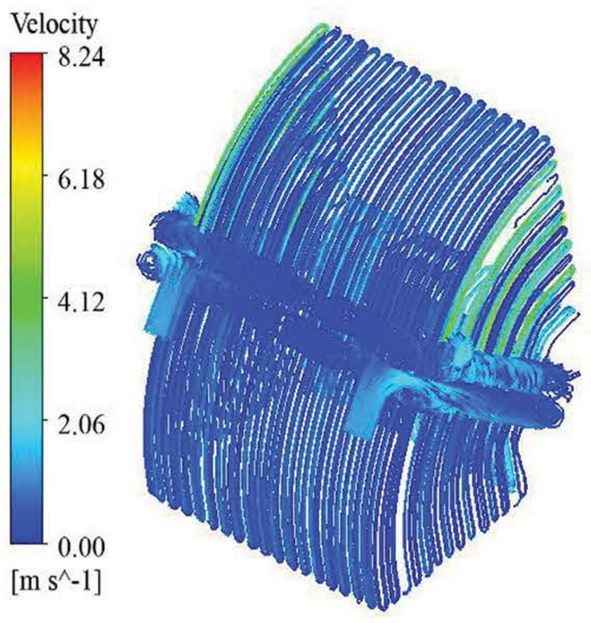


localization and fluid analysis of water cooled way of Danieli arm design in order to determine how the fluid circulates in the collection and redesign

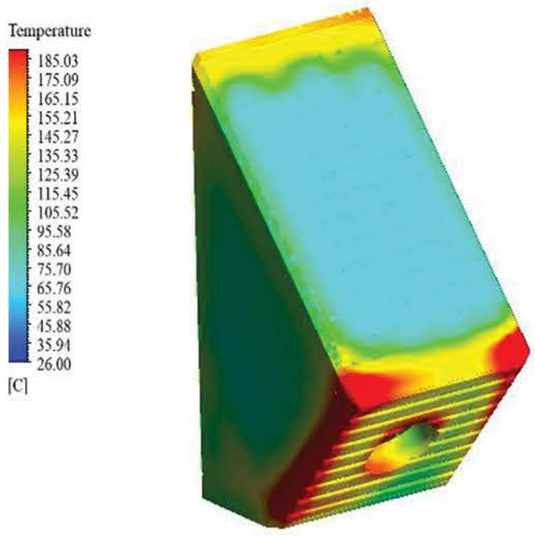


Thermal analysis of the copper shoe of the world of Sirjan Steel in order to optimize the water cooled way

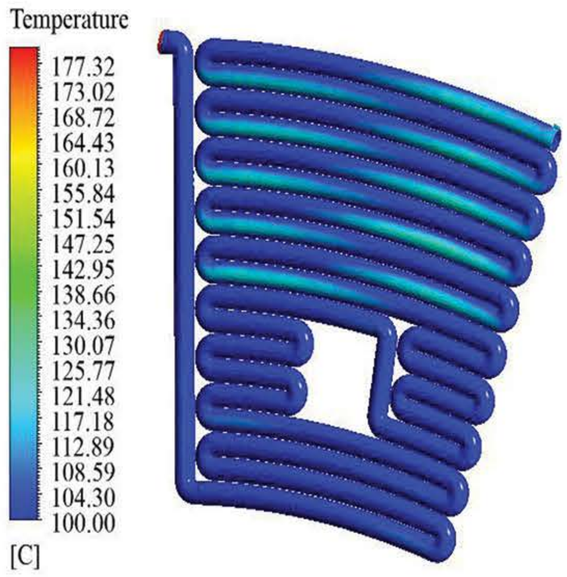




Fluid analysis of Sirjan Iranian elbow
Identify external sample design defects



Thermal analysis of 400 type in order to identification of
hot zones and optimization of water cooled system



Thermal analysis of Sirjan Iranian roof panels
in order to optimize and improve cooling performance

Water Cooled Plate Panel

The design of the water cooled panel and the method of making the plste panels have been registered in the name of Irsa Steel Equipment Company.

|The use of these panels, which completely cover the thermal joints of the furnace and have no welding line on the furnace side, reduces to zero emergency repairs and the risk of leakage from the furnace

Longer life than tubular panels

No need for welding in the water path

No need for welding on the furnace side

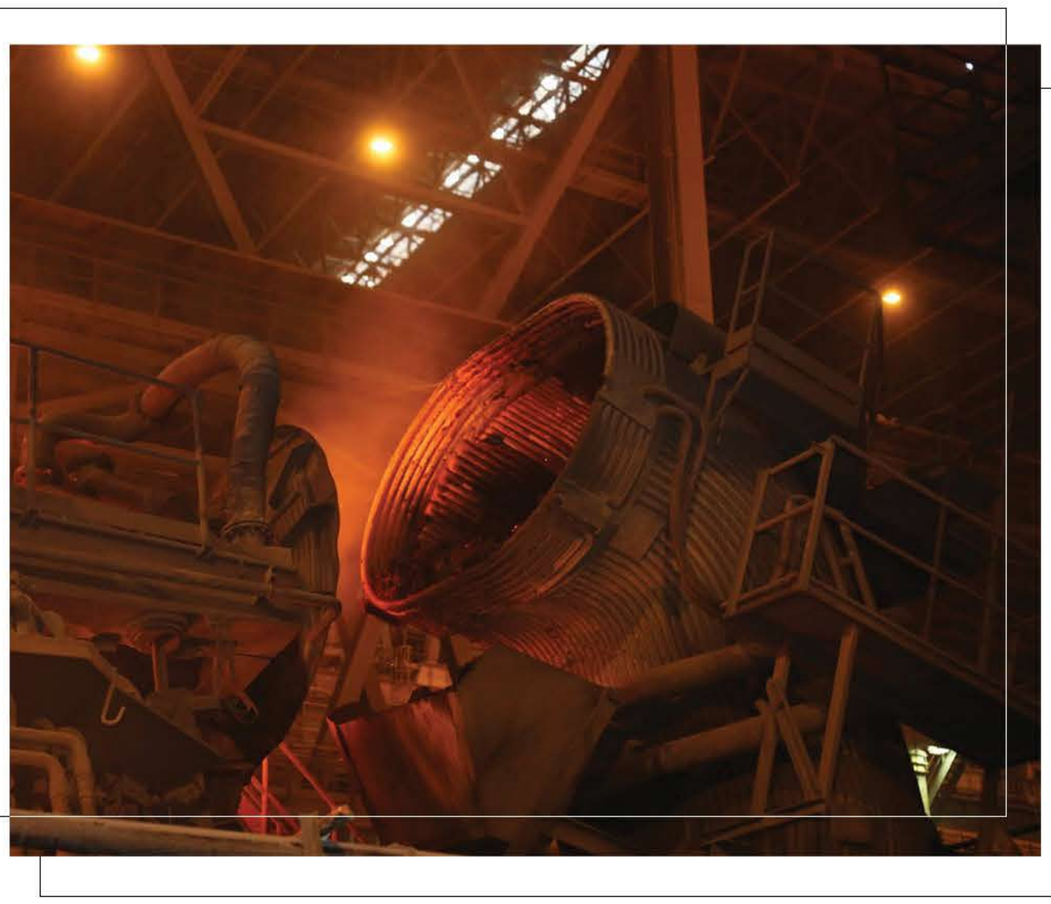
Reduce water leakage stops

Reduce furnace energy loss due to integrated panel structure

patented

Eliminate the problem of improper cooling by using the flexibility in the design of the water cooled , in proportion to the position of the panel in the furnace

Water Cooled Panels



Water cooled panels

All kinds of fixed and moving electric arc furnace elbows are designed and manufactured by Irsa Company. The high quality of the pipe material, the welding of the pipes and the development of a special heat treatment process have minimized the problems caused by leakage and the short life of elbow.

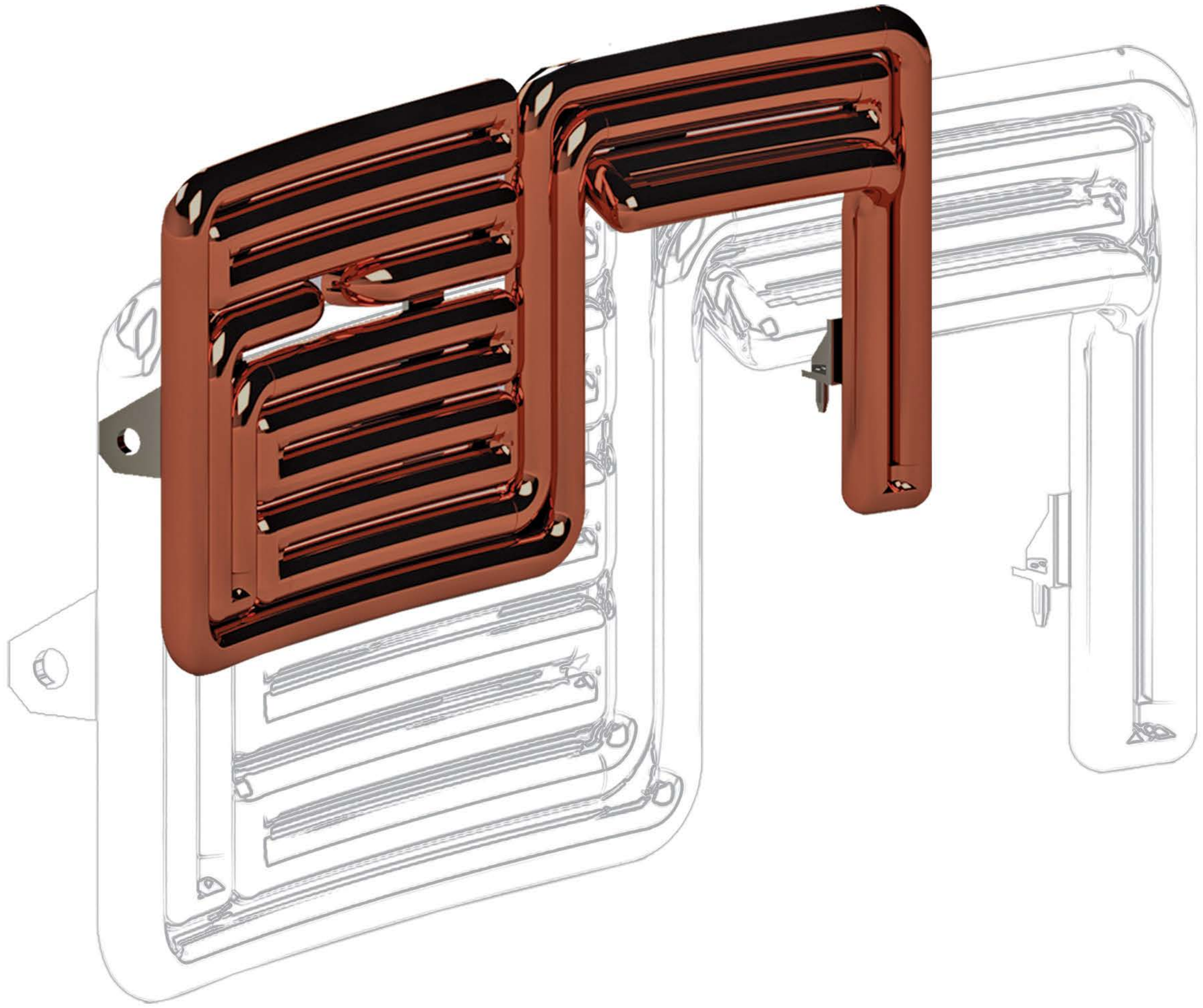
Copper Cooling Panel

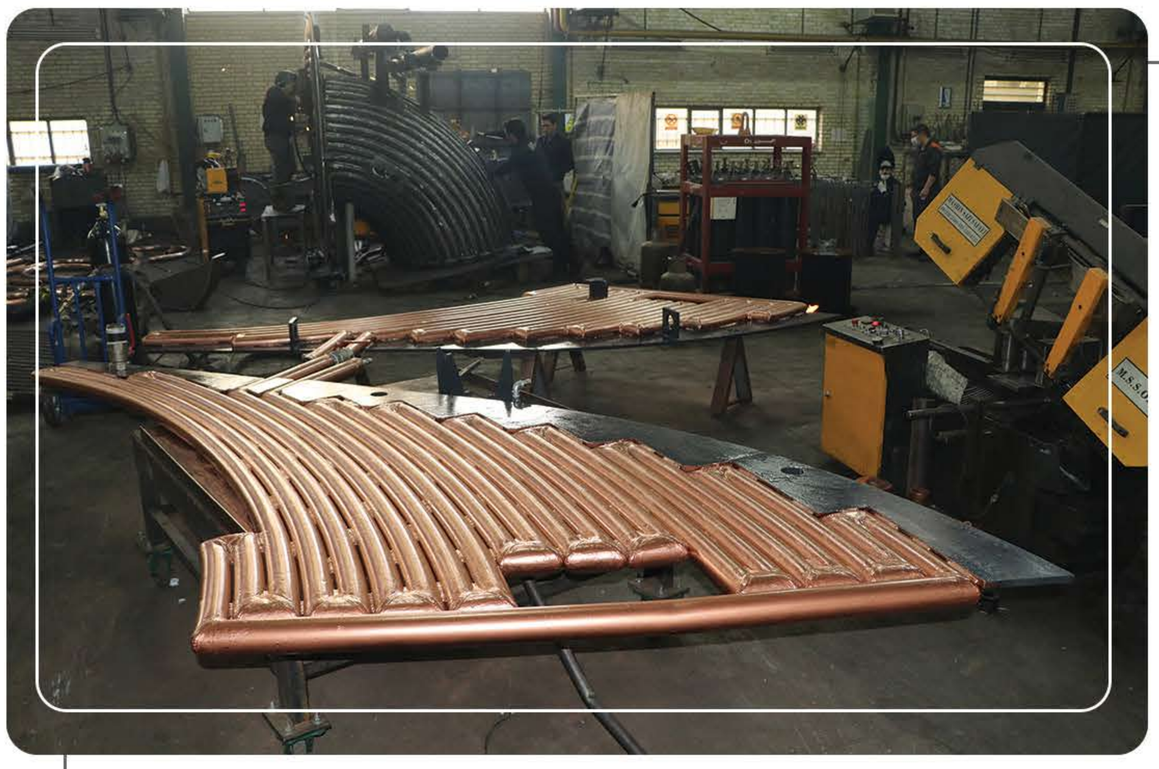
Copper Tube Panel

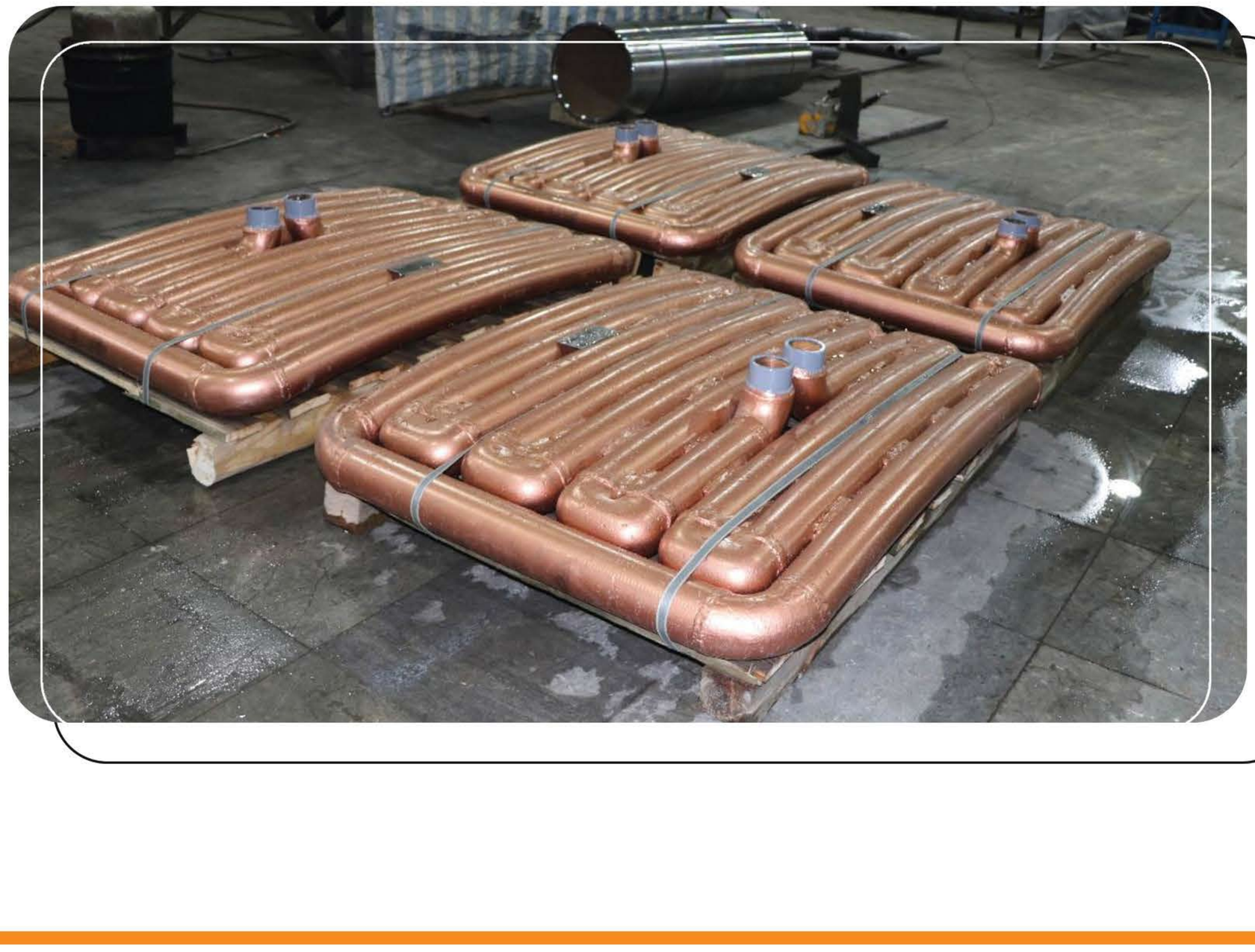
It is made of DHP copper with thicknesses of 12-8 mm.

Welding of these parts is done using European quality materials and with helium gas.

Welding and heat treatment with proprietary technology developed by Irsa has resulted in panels with maximum life and minimum need for emergency replacements.





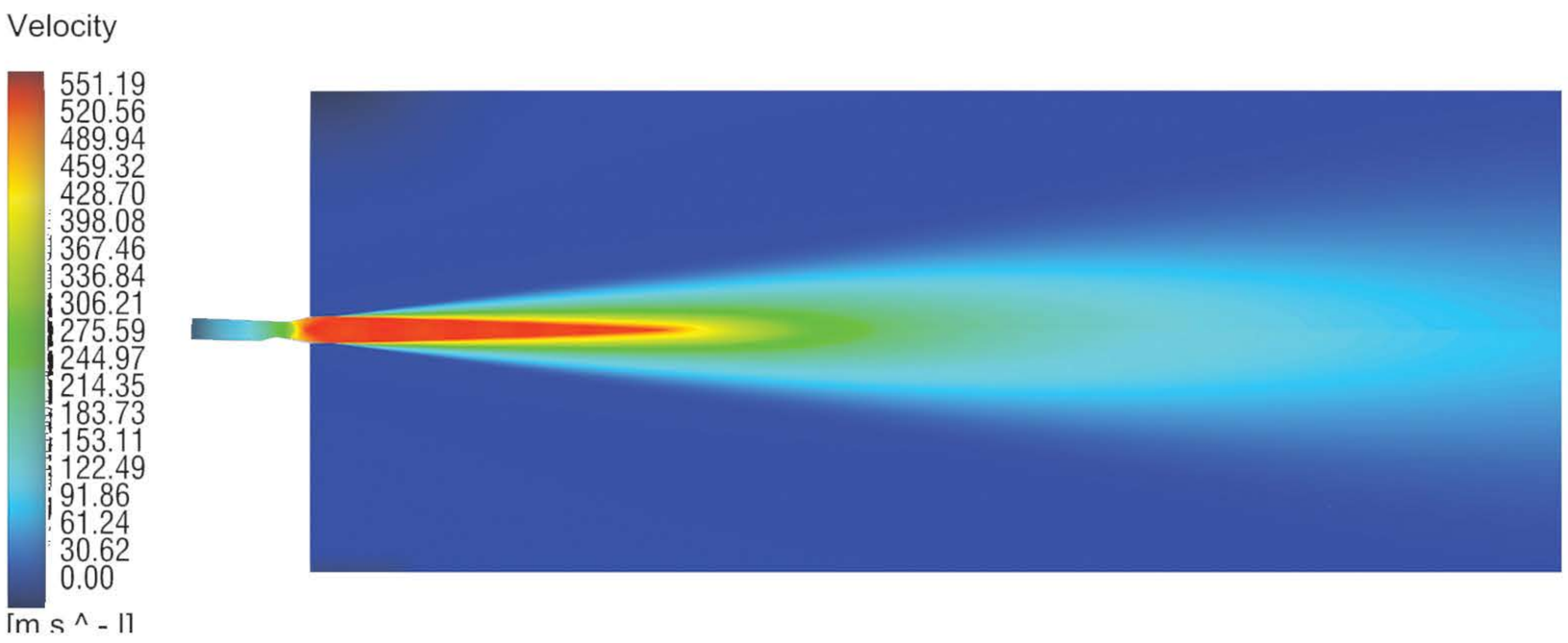


IRSA BLOCK LANCE

Oxygen, Carbon & Lime Injector

Lances produced by Irsa Steel Company are made of high purity oxygen-free copper and 304 steel. In Irsa's exclusive production method, the casting process has been wholly replaced by machining and forging.Also, the copper water-cooled lance design using Fluent computational fluid dynamics software reduces water consumption. The cooling of the copper block is done with the highest possible efficiency. To further extend the life of the copper block, nano-coating is performed using the plasma spray process on the Lance series. Field studies show that the use of this coating significantly prevents the formation and growth of surface cracks on the segment. Also, supersonic oxygen nozzles are made of oxygen-free copper, which besides safety, reliability, and long life, also reduces the melting time compared to when similar nozzles are used. So far, Irsa's lanes have been produced in three different types: 300 ,200 and 400. After reviewing by the Irsa technical office, the appropriate lance will be suggested for installation according to the type of furnace and the client's expectations. Irsa's R&D department is constantly updating production lance designs, and it is possible to design a unique product under the proposed conditions.

Increasing the length of the supersonic core and the momentum above the fluid when in contact with the melt can increase the depth of oxygen penetration into the melt and its effect. Penetration depths above 40 cm in melting can increase the efficiency of the blowing up to %90.



BLOWING LANCE

Type 200

-Reduction in weight and price compared to similar samples.

-Increased life was guaranteed. An average of 1,000 melts to more than 3,000 melts, it is worth mentioning that the record of 7000 smelters has been recorded in Mobarakeh Steel Complex in Isfahan.

-Reduce water consumption and reduce the number of entries to one entry

-Reduce installation and replacement time of equipment in electric arc furnaces

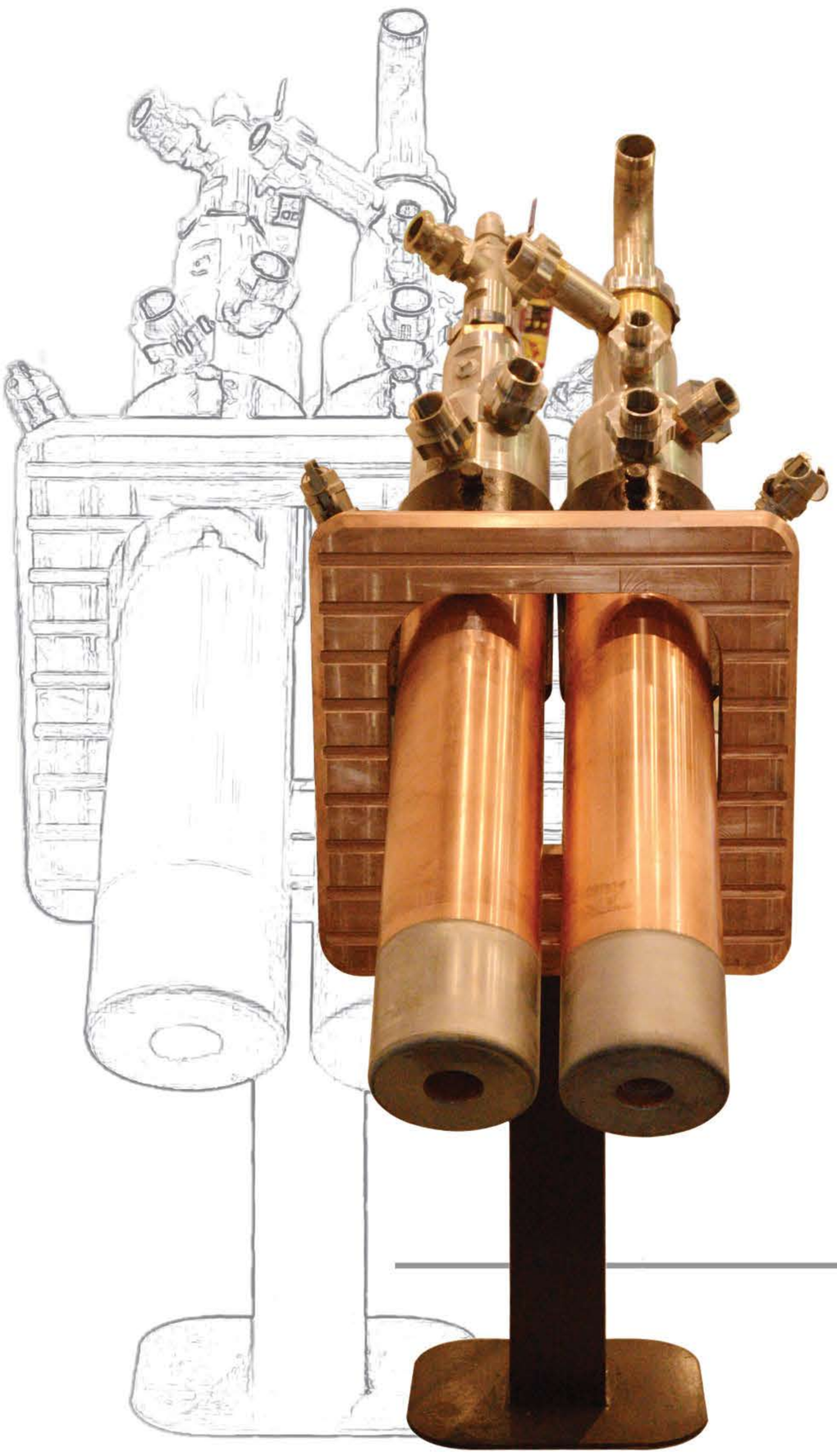
-Ability to replace the nozzle during melting

-Ability to change the blowing angle

-Reduced melting time compared to similar samples

-Reduce furnace downtime and maintenance costs

-Nozzle coating using special nano-coating



Blowing Lance Type 300

-Supersonic nozzle with greater penetration depth than previous samples

-Reduce the output distance of the lance to the surface of the melt by 20cm

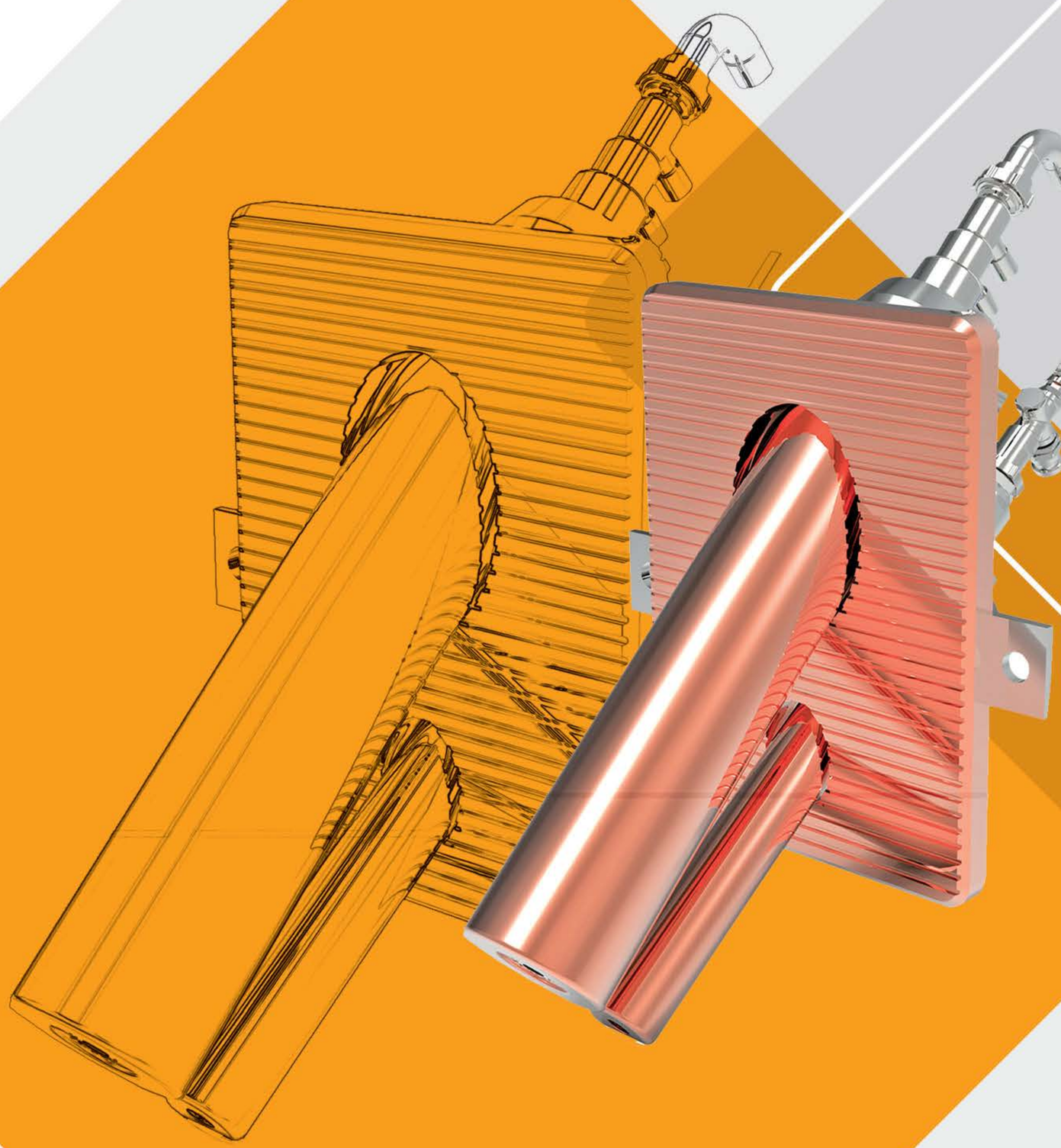
-Reduce melting time

-Top-down placement of carbon and oxygen lances so that the line central injection of carbon and oxygen meet at the surface of the melt.

-Increase the life of the nozzle by installing an internal water-cooling path

-Lance coating with a particular type of fireproof coating

-Ability to change the blowing angle



Blowing Lance Type 400

Irsa Company has designed and produced type ۴۰۰ lanes to solve the problem of carbon and oxygen lance location and eliminate their interference with refractory bricks for special types of furnaces.

Increasing the life of the refractory, increasing production, and minimizing emergency repairs are advantages of this type of Irsa lance.

-Increase the life of refractory bricks by using cooling panels in the block

-Ability to install carbon lance up - down and side by side

-Flexibility in the water cooled design and the location of the lances by the space of the installation site

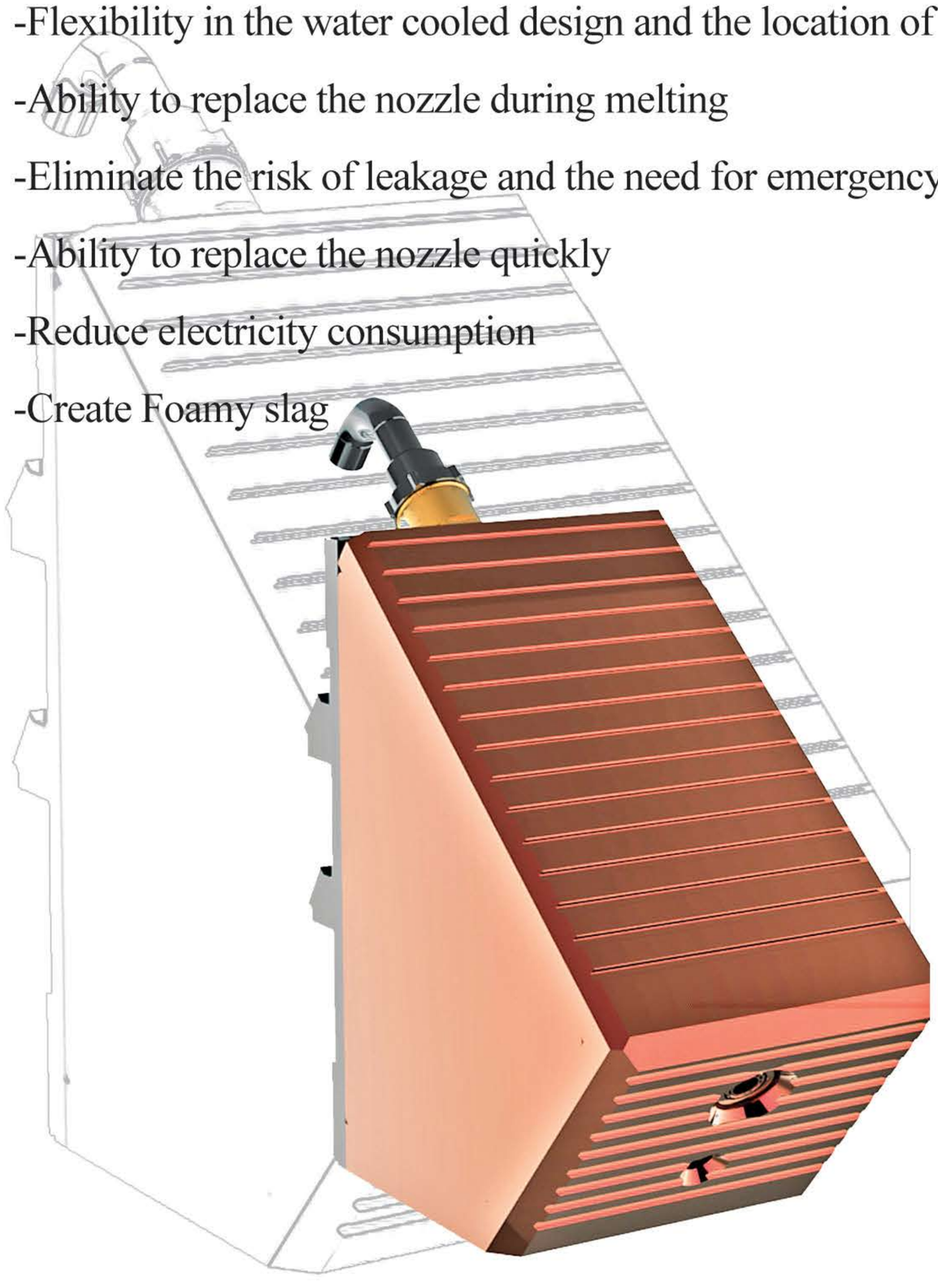
-Ability to replace the nozzle during melting

-Eliminate the risk of leakage and the need for emergency repairs

-Ability to replace the nozzle quickly

-Reduce electricity consumption

-Create Foamy slag



High-efficiency supersonic nozzles

Oxygen injection plays an important role in reducing electrical energy consumption. Water-cooled supersonic nozzles have a long life and can be operated closer to the melt.

The supersonic blower nozzle profile has been optimized using computational fluid dynamics methods and tested in a state-of-the-art supersonic laboratory.

Coating methane and oxygen blowers are designed to increase the effectiveness of the ultrasonic blower and increase the ultrasonic blowing efficiency during melting.

These nozzles are made of extruded pure copper, machined using a -۵axis milling machine.

The latest methods are used in welding copper to steel parts.

1300-3500 Nm³ /hr	Oxygen flow
50-700 Nm³ /hr	Methane flow
50-500 Nm³ /hr	Shrouding Oxygen flow
0/7-1/2 Kg/s	Circulating water flow
3-7 bar	Permissible pressure

Supersonic Nozzel

Supersonic Oxygen Injector

Type 400	Type 300	Type 200	description
body			
BOX MODEL	1200 mm	1065 mm	Lenth
Copper alloy			material
Fits the dimensions of the installation site	240/122 mm	185/60 mm	Inner diameter/ Outer diameter
months 12			Average life
cooling			
6bar			
10m³/h			
damin water Maximum particle diameter ½ mm cool water			
Design point			
2/5	3	2/5	

IRSA

pooladtajhizirsa co.

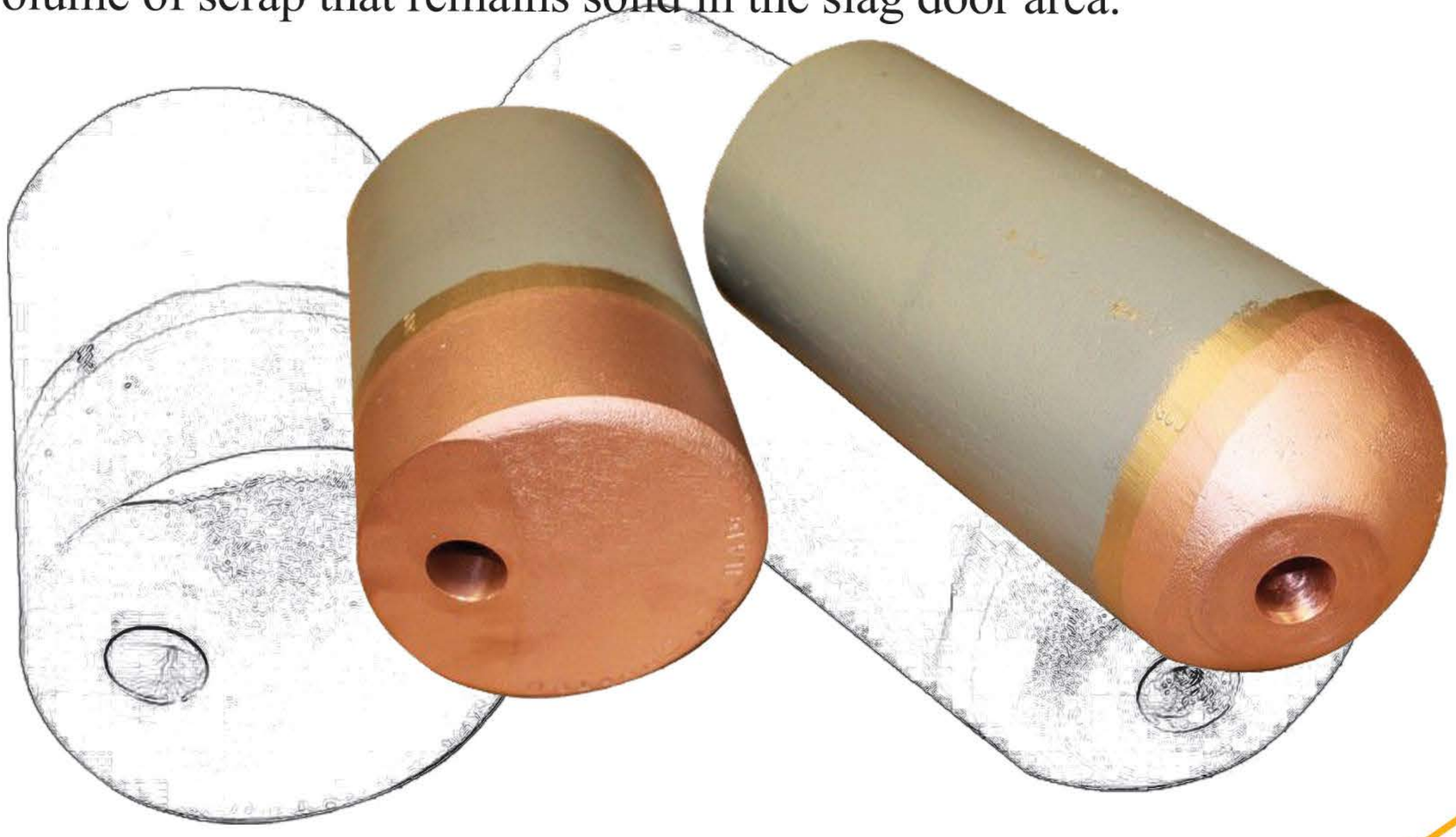
National production .Durability. Originality

The tip of Slag Door Supersonic Oxygen Lance

The tips of slag door Lance is produced using forged copper alloy and ۵-axis CNC machining. Standard copper extrusion sections with high purity and thermal conductivity are used to make the copper nozzle tips of the slab door lance set manufactured by Irsa Company. The slag door lance injects oxygen and carbon at this position.

Irsa slag door Lance includes manipulator, oxygen valve, hydraulic system equipment, automation, and control.

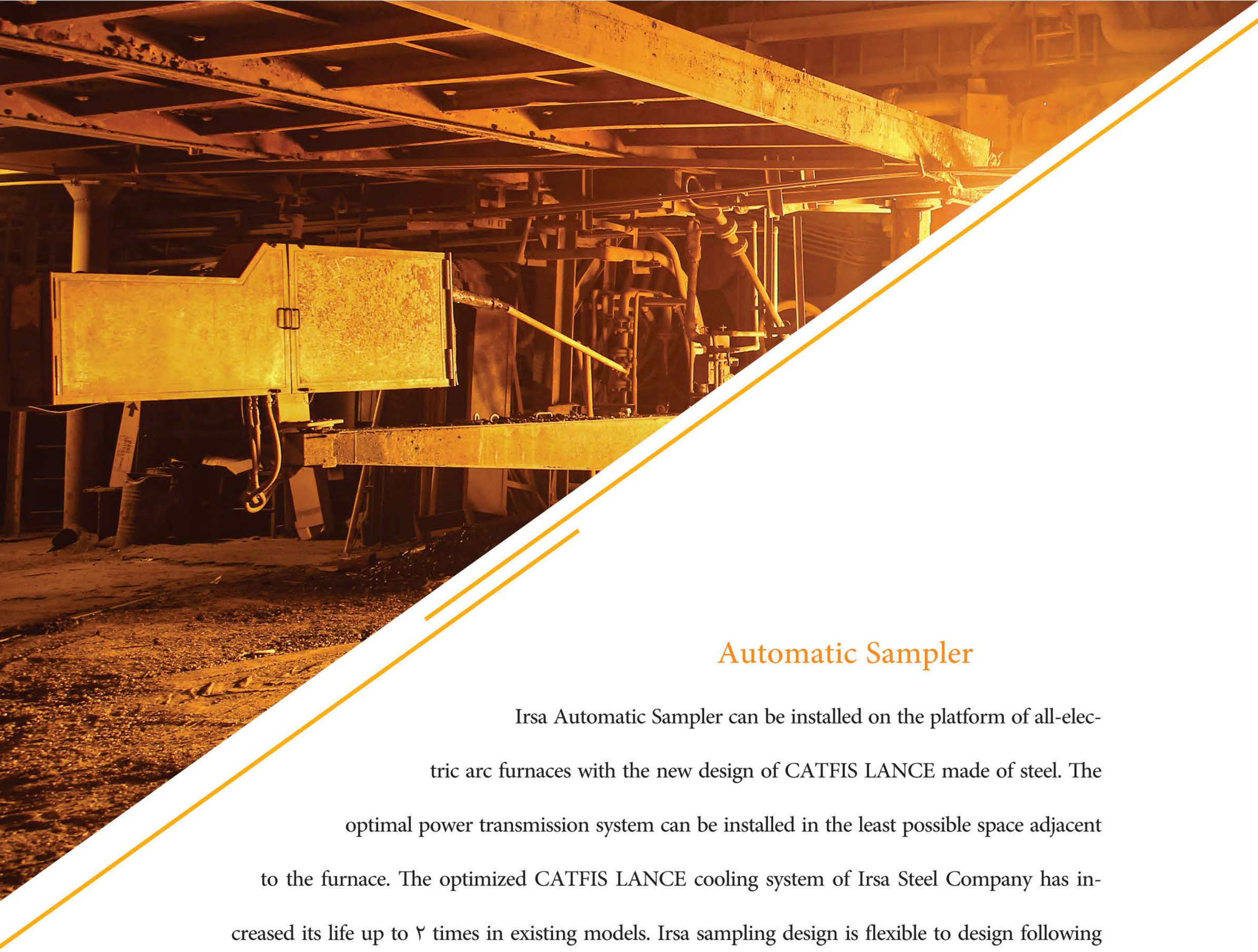
The lance arm is mounted on a fixed platform at a certain distance from the furnace. Using this equipment, the operator can increase the melting rate of the volume of scrap that remains solid in the slag door area.



EAF Lance

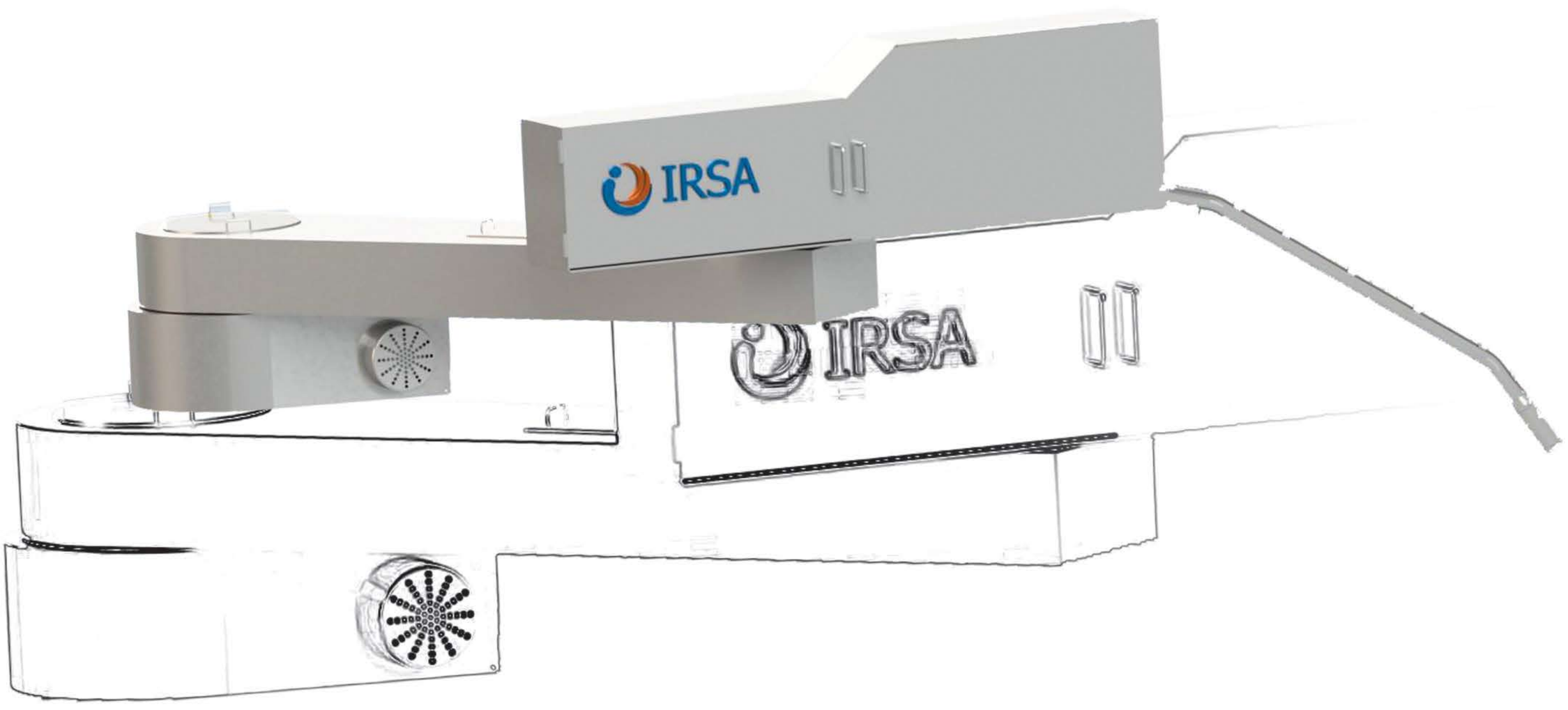
Slag Door Supersonic

Oxygen Injector



Automatic Sampler

Irsa Automatic Sampler can be installed on the platform of all-electric arc furnaces with the new design of CATFIS LANCE made of steel. The optimal power transmission system can be installed in the least possible space adjacent to the furnace. The optimized CATFIS LANCE cooling system of Irsa Steel Company has increased its life up to ۲ times in existing models. Irsa sampling design is flexible to design following the space available at the installation site and the client's comments.

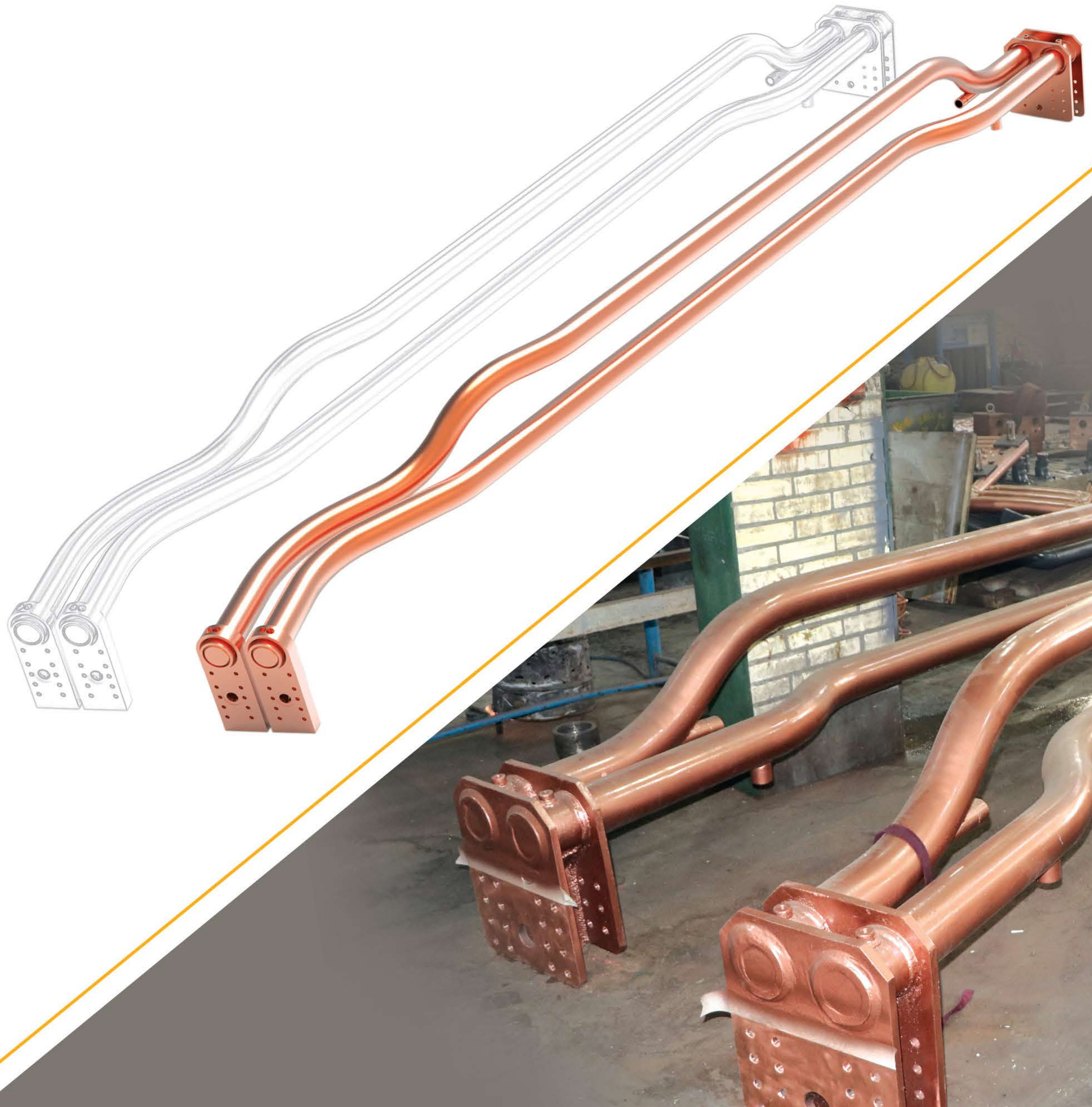


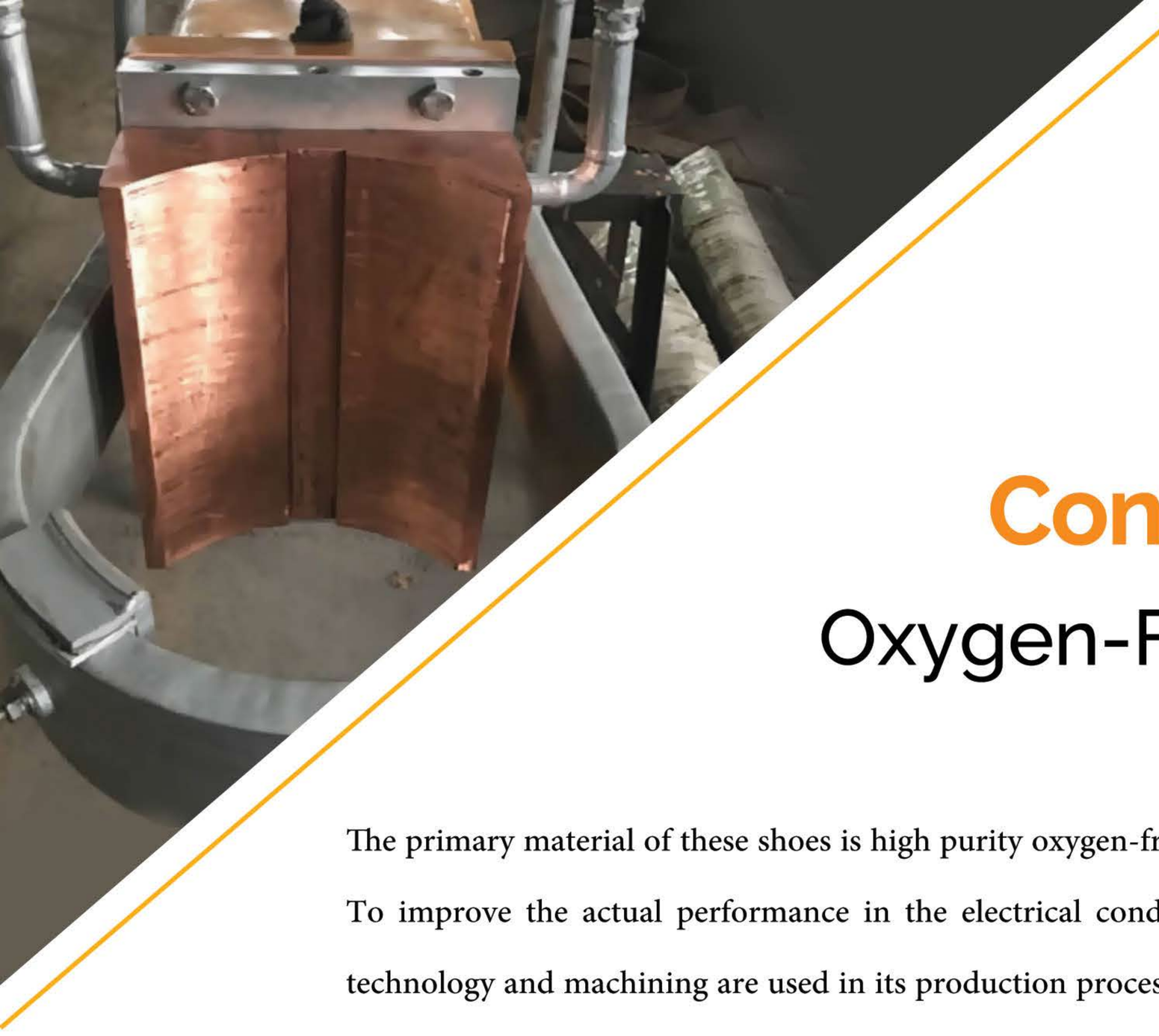
Automatic Sampler

Bus Tube

Bus Tube

To transfer electricity from the transformer assembly to the electrode arms, high-thickness TPC copper is used, which is made using a high-precision CNC bending machine.





Contact Shoe

Oxygen-Free Copper

The primary material of these shoes is high purity oxygen-free copper (TPC).

To improve the actual performance in the electrical conductivity of electricity, forging technology and machining are used in its production process.

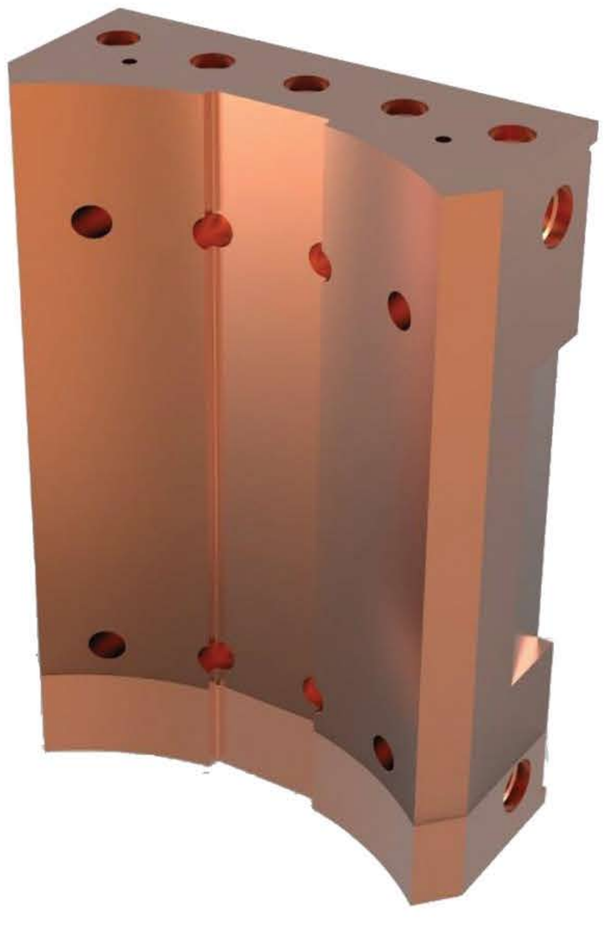
It should be noted that the shoes are made in the form of forged and fully integrated with fine grain, and the very long working life is one of the prominent features of this type of shoe.

Made of oxygen-free copper

High thermal and electrical conductivity

Remove casting and replace it with machining and forging

Oxygen-Free Copper	material
770*530*220	size
4-6 **bar**	Operating pressure



Copper slag door electrode

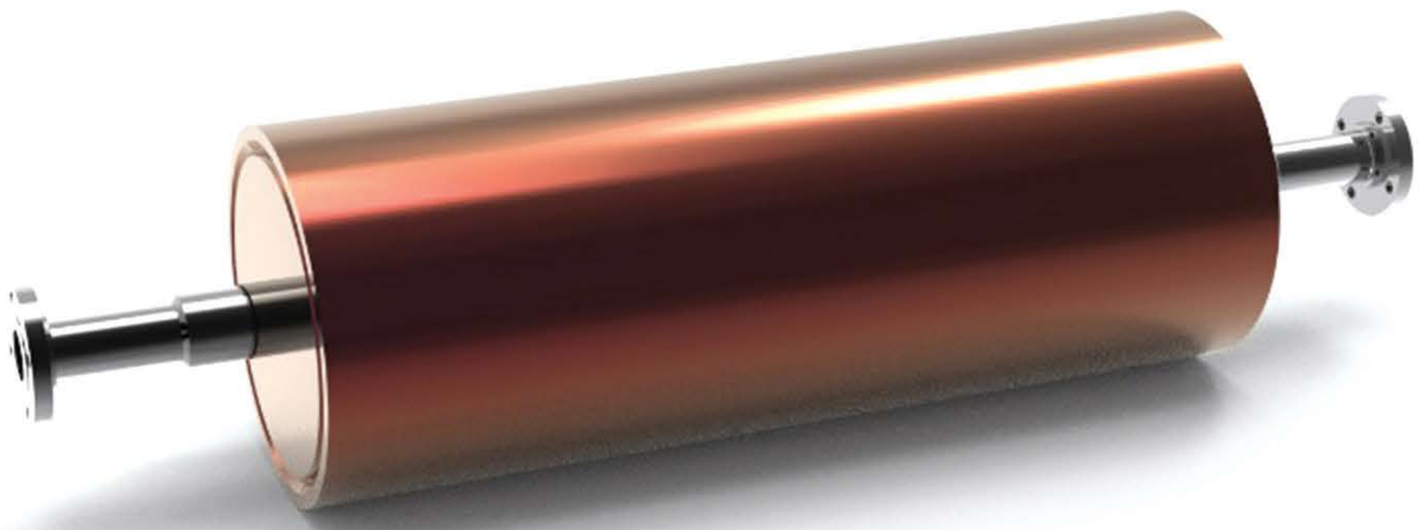
Copper slag door electrode made by Irsa Steel Company made of alloy copper with the highest tensile strength, resistant to high temperature of passing slag. Thermography of the copper drum while working on the arc furnace shows the drum surface temperature does not rise above 120 ° C, which shows the excellent performance of the cooling system designed by Irsa Steel Company.

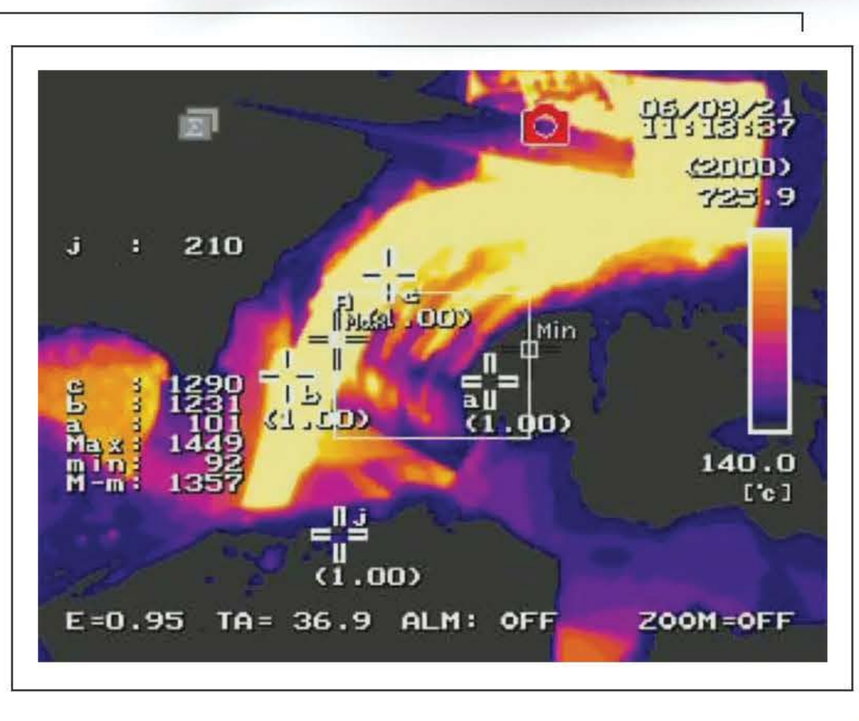
High cooling system power

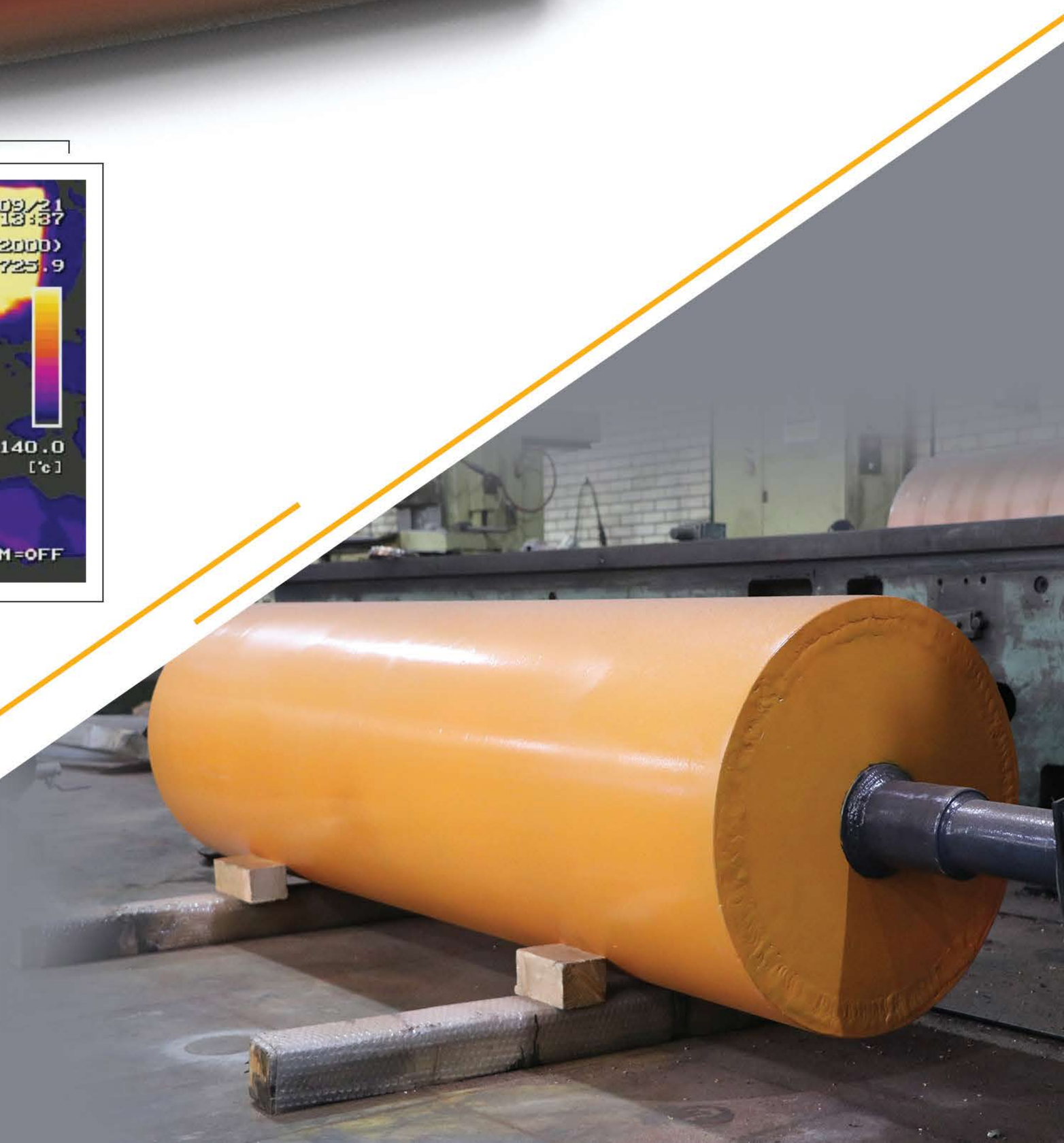
Cooling capability in a wide range of inlet water flow

optimization of cooling system design

technical approval from Pasargad Steel Industrial Complex.







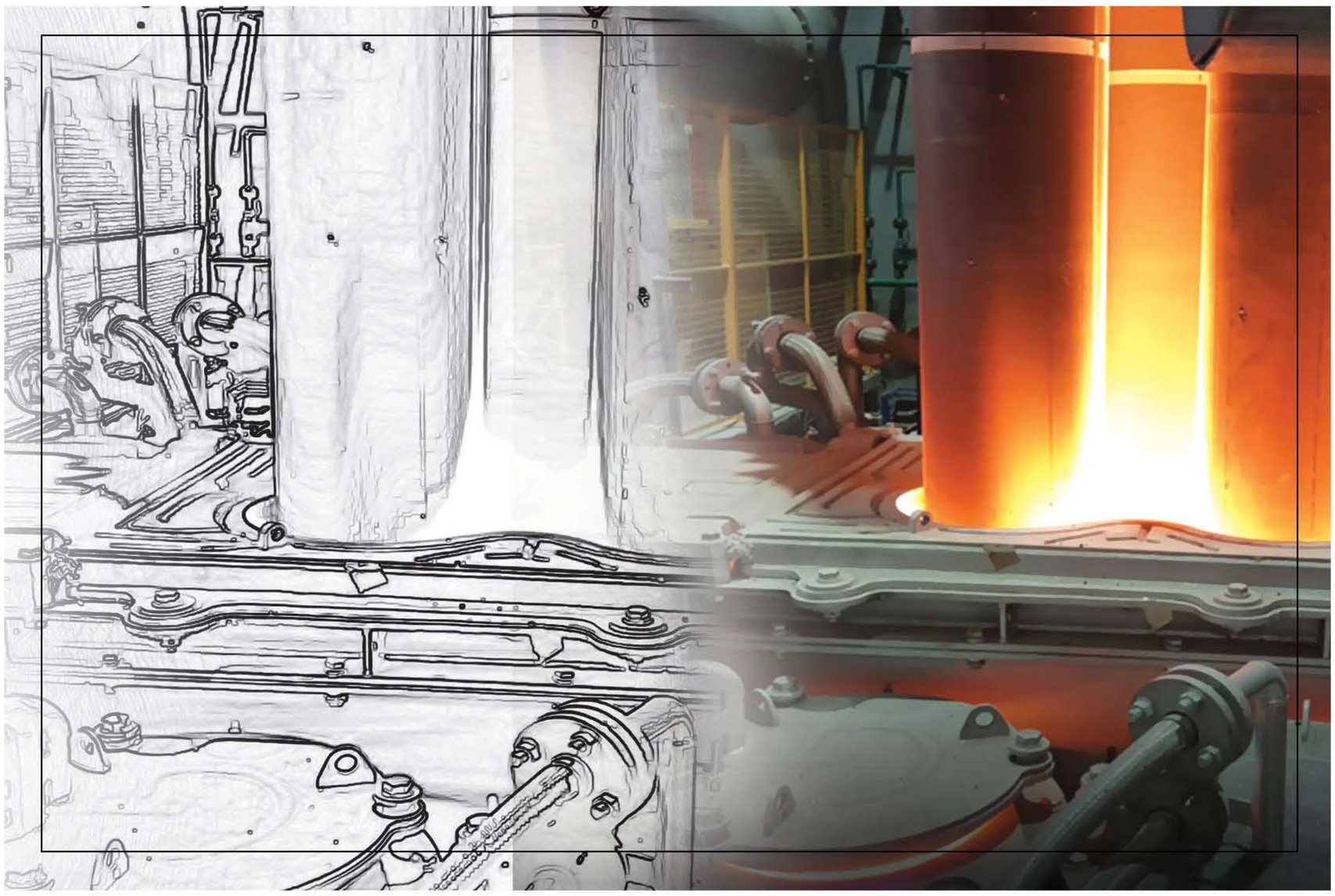
Copper Slag Door Drum

Copper drums are an excellent alternative to the existing graphite electrodes for the slag door, installed in the same position as the graphite electrode. Because of the cooling system, these types of equipment have a useful life of 3 to 5 years and significantly reduce the cost of replacement and shutdown of the furnace.

Because of the increase in the price of graphite electrodes, the use of copper electrodes is economically justified. On average, in steel complex, due to the quality and fluidity of the produced slag, graphite electrodes last about 100 melts. Besides the high cost of using graphite electrodes, it imposes more costs on the steelmaker for furnace stops.

The solution to this problem is to use water-cooled copper electrodes with a lifespan of over 20,000 melts, which is very cost-effective. The companies using this equipment have announced more than $ 2.5 million in foreign exchange savings from copper electrodes, including parts purchases and reduced downtime. The design of the copper drum water-cooled system should be based on the study of the entire upershell cooling system, which is unique to each furnace.

grade	Materials
1450-2200mm	length
460-750mm	External diameter
850-2100lit/min	Circulating water flow



copper delta

Irsa's solution is to use copper delta to solve the problem of corrosion and the temporary life of refractory roofs. The copper delta of Irsa is equipped with a water cooling system, which increases its operating life by at least 1,500 melts. This part is designed and manufactured under IEC 60676 and IEC 62539 standards.

-Increase life to at least 1500 melts

-Reduced shell assembly and disassembly time because of removal of Delta repairs

-Reduce furnace stops due to delta switching

-Capital return rate 2 to 3 months

Number of consumption per year	Average number of working days	Maximum number of melts	Minimum number of melts١٥٠٠	Delta type
3	118	3000	1500	COPPER Irsa Delta
30	16	300	150	Refractory Delta

Copper Center Roof

Water Cooled

Arc furnace roofs, commonly known as delta or central roof, have very short lifespans because of exposure to molten and slag radiation, corrosive materials such as lime and oxygen, and heat shock tolerance because of furnace cooling and heating. Irsa Copper Delta is a new and safe design of electric arc furnace delta that is offered several times the life of the refractory :delta with a guaranteed life.The benefits of copper Irsa Delta

Significant increase in delta life

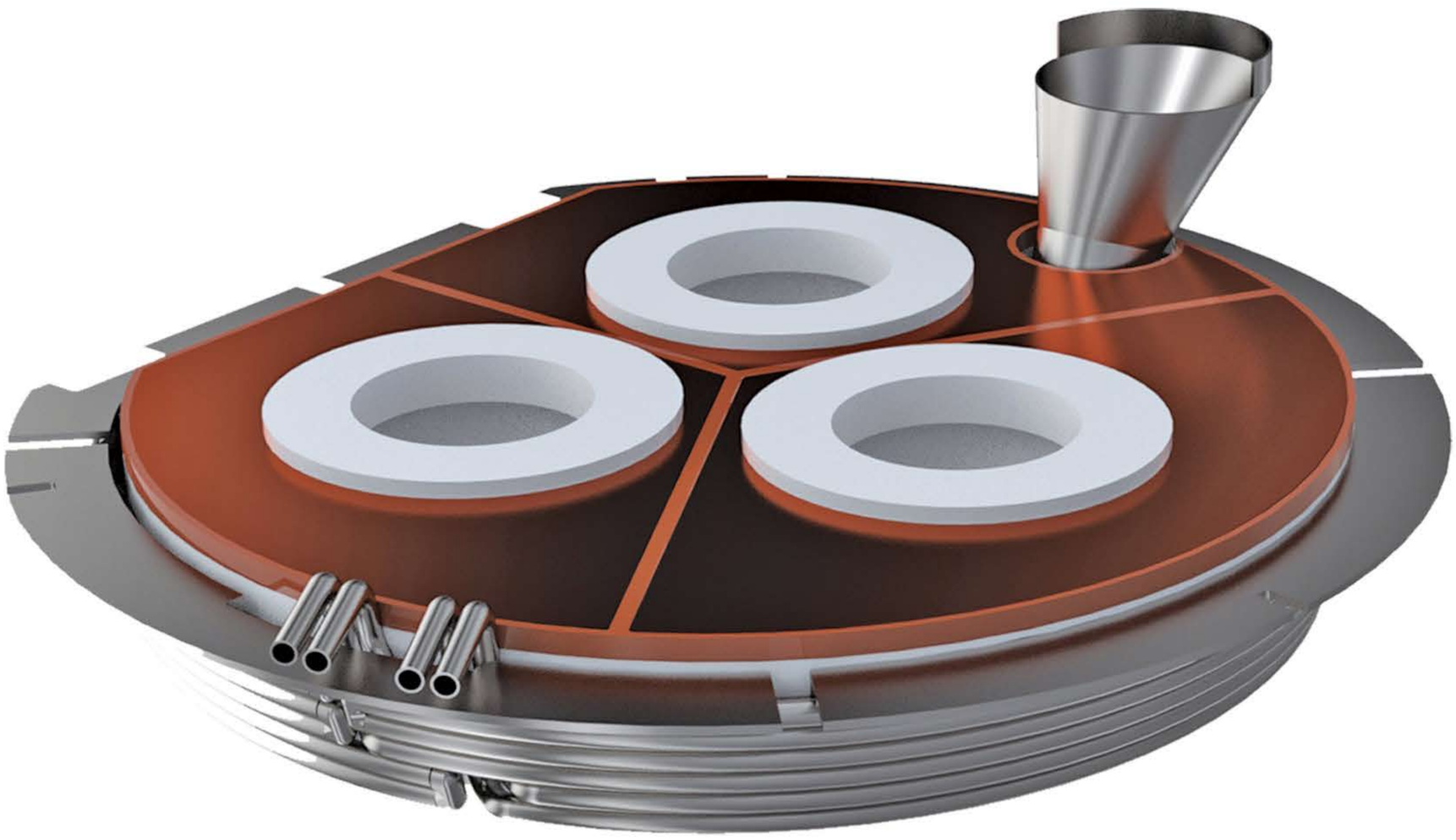
Create added value for the consumer through after-sales as copper scrap at the current price

Reduce furnace stops due to delta destruction

Reduced assembly and disassembly time due to the removal of Delta repairs

Significant weight loss compared to refractory delta

Return on investment in the short term



Arm

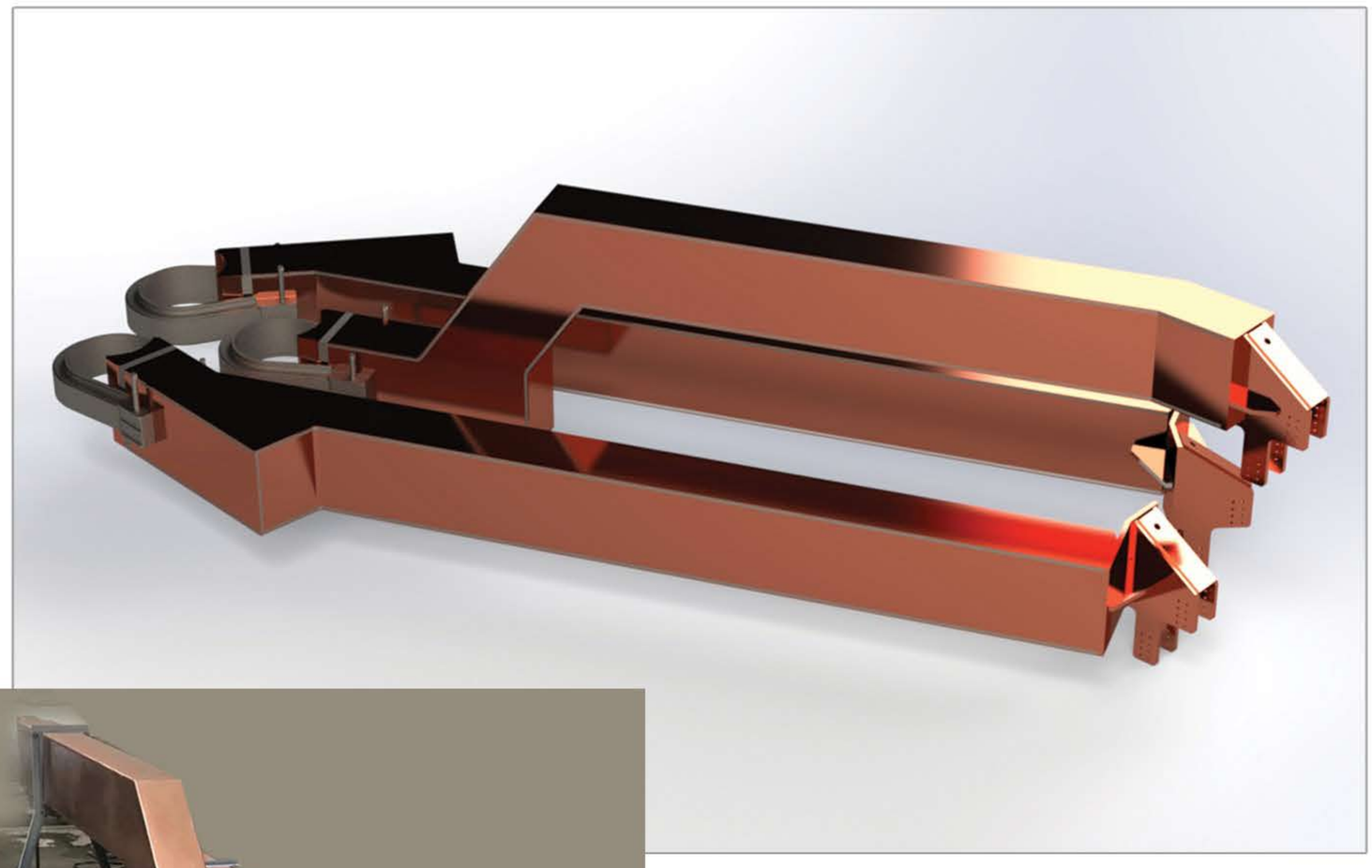
Power Conductive Arm

Irsa Company is the first producer of industrial-scale copper-steel bimetallic sheets in Iran. The .production of these sheets is the first step in producing arc furnace arm and ladle furnaces Irsa steel arms are supplied with the highest amount of electrical conductivity

Develop knowledge of design and production

Optimization following the conditions of the Iranian steel complexes

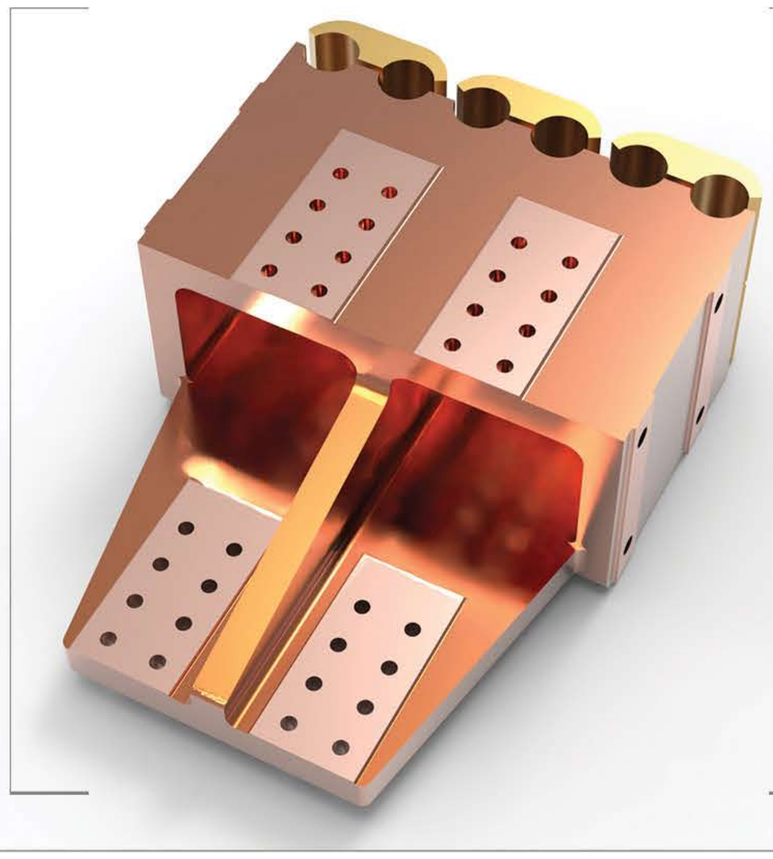
Development of Power Conductive Arm production technology by explosive and friction welding methods



Current Transform Equipment

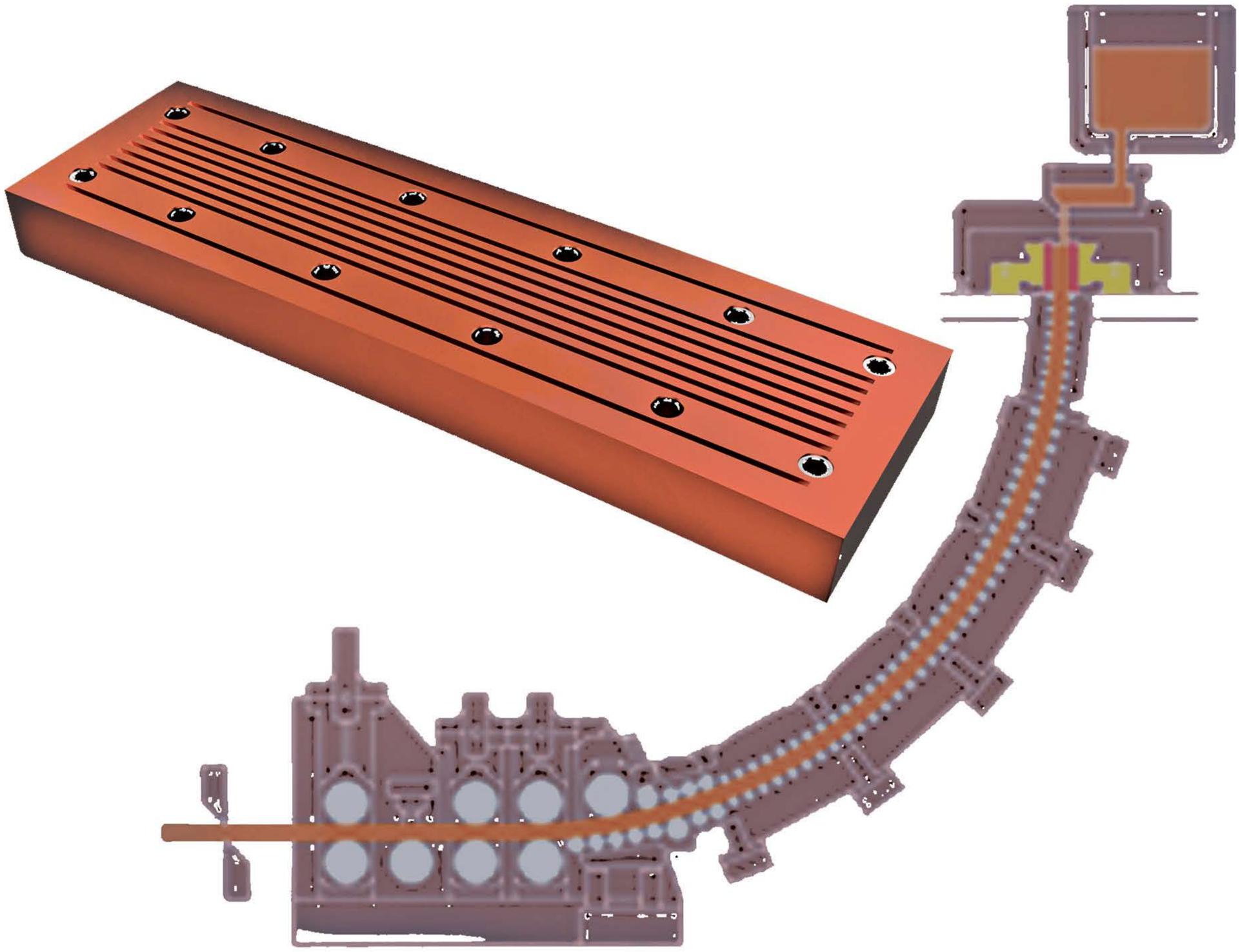
Current transmission equipment acts as an interface between the transformer assembly and Power Conductive Arm to transmit electrical power

The head terminal made by Irsa Company is made of oxygen-free copper with Irsa's exclusive casting technology. Forging and machining steps are performed using precision tools to achieve the desired properties and dimensional tolerances



Crystalizator

Irsa Plate Crystallizers are produced for the first time in Iran using copper-silver alloys and copper chromium-zirconium alloys,. The casting of these parts is done using Irsa's exclusive casting technology. After forging operation, it is cold rolled to adjust and improve the mechanical properties to reach a hardness of 120-100 pieces. Tests performed on Irsa crystallizers show that the part's hardness remains constant with increasing temperature.



Lower Shell

Lower shell Cooling Panels

Lower shell Cooling Panels

The use of Lower Shell cooling panels produced by Irsa Steel Company with maximum

safety and cooling efficiency causes

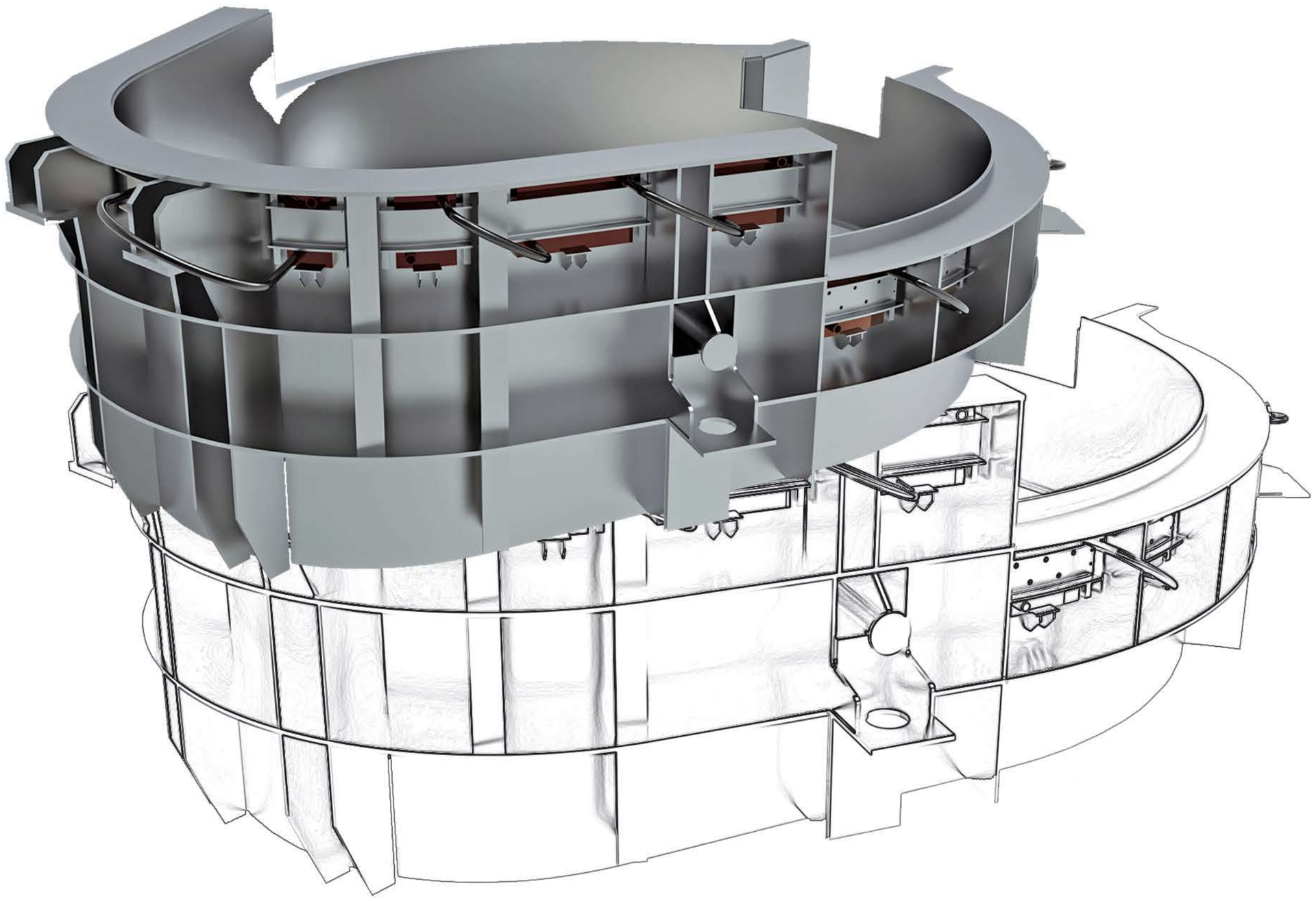
Severe reduction in the consumption of refractory bricks

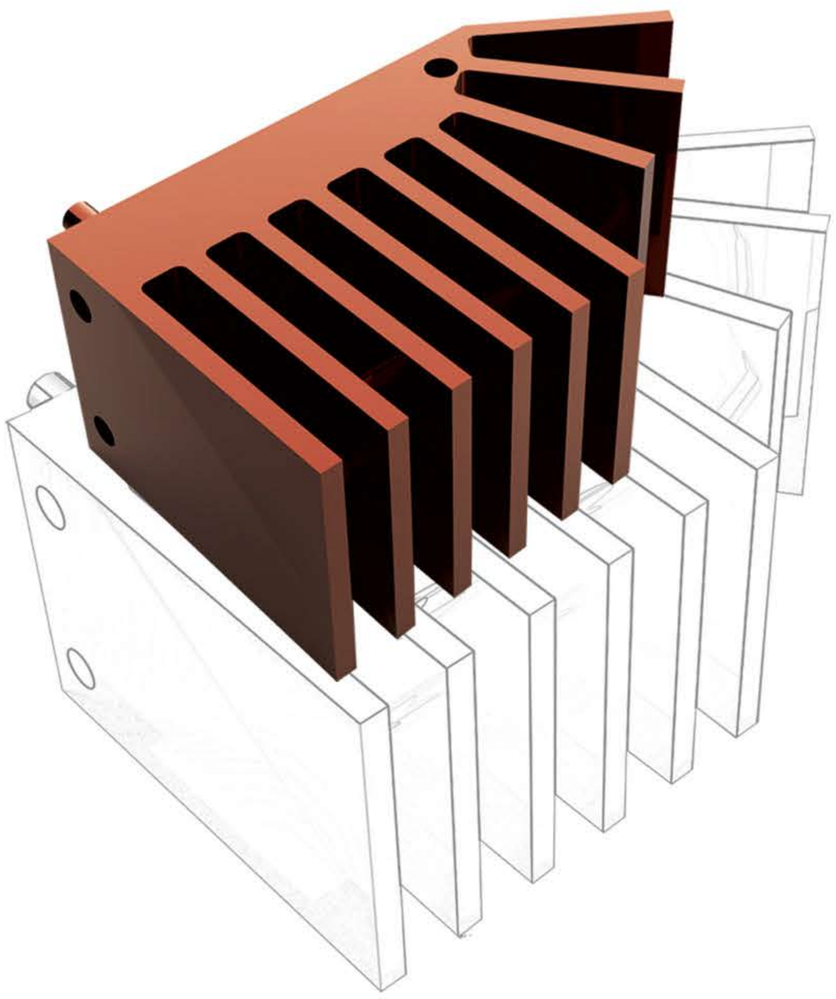
Severe reduction in the consumption of refractory bricks

reduction of furnace stops

Increase the Lower Shell life

High safety and reliability





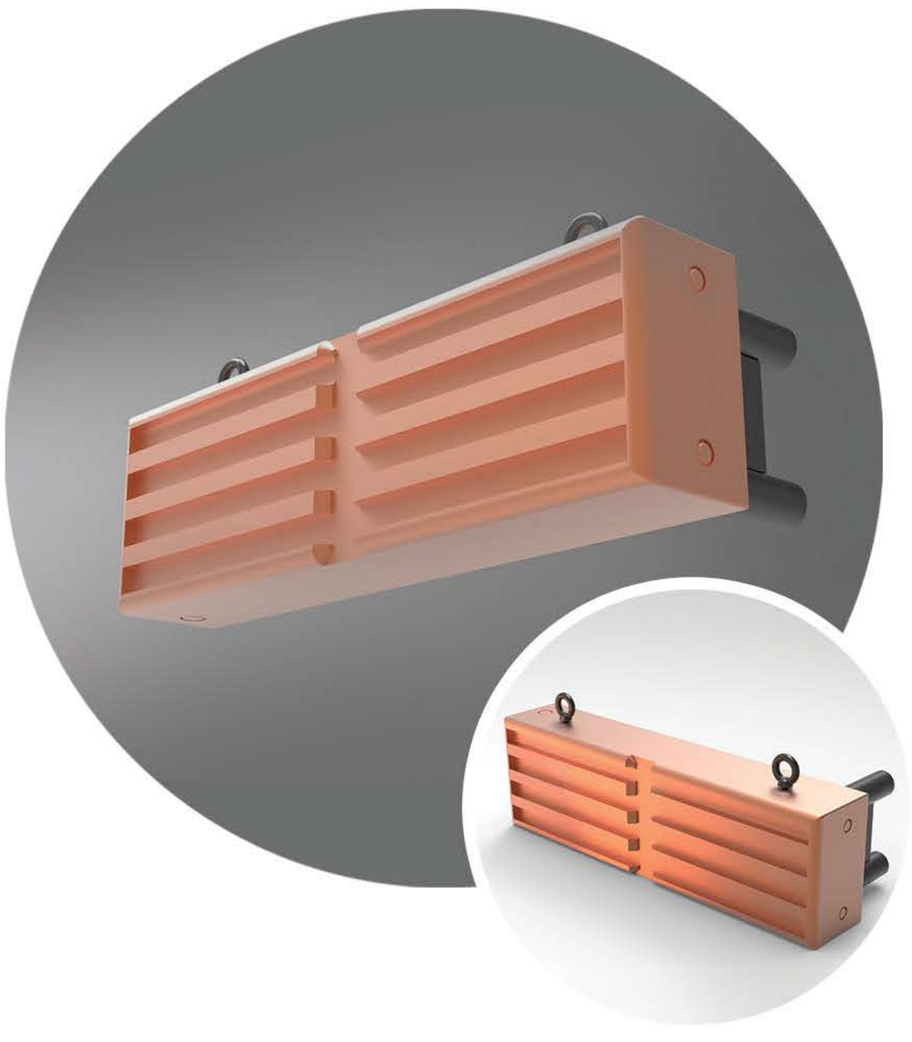
Cooling copper blocks are designed and built for this purpose to cool the refractory furnace and prevent the refractory lock from opening and the refractory corrosion near the slag door.. Refractory cooling increases its life

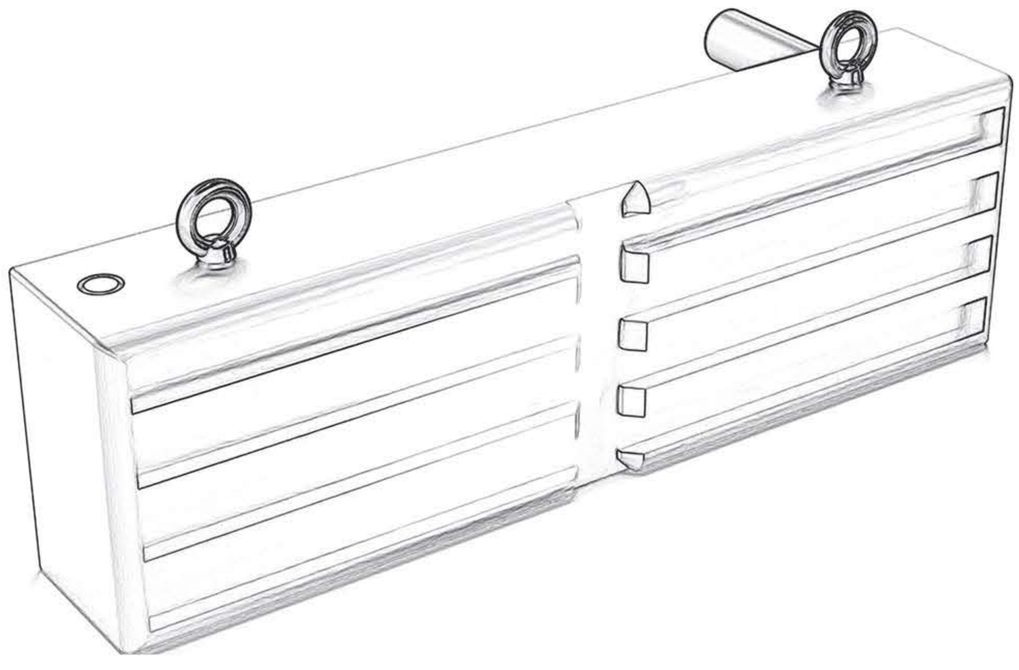
copper by Irsa Company %99.97 The mentioned copper block is made of in a wholly integrated and forged form. Water cooling channels are istalled inside the copper block to cool the block

These parts can be designed, and deformed based on the location of the furnace and the needs of the client

To increase the safety of the workpiece, a high-pressure air inlet is considered so that in case of leakage in part by opening the compressed air path, water leaves the outlet of the region quickly and does not enter the furnace

Slag Door Cooling Box





services

Technical management and implementation monitoring

Providing engineering and technical management services

Supervision of steel plant construction

EPC

Engineering services of steel factories

Essentials and project equipment services

Execution of the project as a turnkey

commerce and operation

The entire operation of steel mills

Buying parts from abroad

Staff training

Repairs

Repairs of all arc furnace copper equipment

Mechanical and electrical repair of units

Continuous steelmaking and casting

Equipment design and optimization

Development of technical knowledge for the production of particular parts

Consulting

Irsa Steel Company, with the establishment of a strong engineering team, includes the specialties of mechanics, metallurgy, electrical and instrumentation, electronics, civil engineering, and industry as a technical and engineering unit, as well as a technical office ready to implement engineering projects and services in the following :different sectors

Consulting, design, and optimization of equipment related to electric arc furnaces

Feasibility study and technical and economic analyses of steel mills

Advice for selecting domestic and foreign companies to supply equipment for steel mills

Designing new systems to improve consumption and increase production

Research and development in solving problems in steel mills

Performing consulting services in upgrading steelmaking equipment

Optimization and redesign of steelmaking consumables parts

Optimization and redesign of steelmaking consumables parts

Some of our customers