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INDUSTRIAL FURNACES

TECHNOLOGY NEWS

FROM OUR BOARD CHAIRMAN: ON R&D AND INNOVATION

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Dear valued readers,

We have left behind a very challenging year in 2024. As a company, we did not experience any revenue loss during this difficult period; however, as is the case with every company, labor costs increased by 100% within the overall cost items.

Under these conditions, we were forced to reduce our workforce by a certain percentage in order to stay afloat. Thanks to this, we managed to close the year with a modest profit compared to our targets.

Unfortunately, 2025 does not seem to be much better than 2024.

To cope with labor costs that have almost reached Italian levels in foreign currency terms, we must increase per-capita productivity and produce much more value-added products.

When it comes to value-added products,

R&D and innovation are at the forefront for our companies.

I would like to share the information I have compiled from the books I have read on this subject, along with my own opinions, in the pages of our magazine.

Your opinions on this matter are also very important to us. We would be delighted if you could share your views and experiences with us, and we may feature them in future issues of our magazine.

Another important issue is the failure to meet company targets. Despite rigorous monitoring and action in recent years, we have observed deviations beyond acceptable limits in terms of revenue, labor costs, and profitability targets.

We address this issue in this issue as well. You will also find an interesting article by our independent board member, Mr. Tuğrul Fadıllıoğlu, on managing issues rather than targets.

I hope you enjoy reading this content-rich issue and wish you health and success in your work.

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INDUSTRIAL FURNACES TECHNOLOGY NEWS
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R&D AND INNOVATION CULTURE IN TURKIYE

Mehmet Özdeşlik - Sistem Teknik Sanayi Fırınları A.Ş. Board Chairman

The foundation of a country's development lies in a healthy society and a strong economy. This is only possible by producing high value-added products. Behind value-added products lies innovation.

In this article, I would like to share with you the information I have gathered from various sources on groundbreaking innovations, as well as examples of innovation from abroad and from our own company, and my own solution proposal.

Innovation is not just a new idea; it is a different, effective, and solution-oriented approach. Contrary to popular belief, it is not a brilliant idea, but rather the emergence of many ideas and the interaction of people from different fields to solve an important problem or meet a need.

For innovation,

- Being close enough to the field to identify needs and problems,
- Building efficient teams by bringing together different disciplines,
- Cultivating individuals who can think outside the box, question, and experiment,
- Additionally, it is necessary to eliminate the managerial mindset of "unwelcome innovation."

Innovation is not discovery.

We must understand the difference between discovery and innovation. Scientific studies are discoveries; they do not produce commercial results. However, they are very important in terms of paving the way for technology.

The primary task of universities and research institutions is scientific research and new discoveries. The

TÜBİTAK

In 2003, we began our journey to produce vacuum furnaces with an R&D project supported by TÜBİTAK. Our project was crowned with the TÜBİTAK Technology Award in 2005.

There are many successful innovations in Turkiye. Getir and similar companies are examples of this. Although these types of innovations generally appear to be in digital technologies, there are many examples of success in machinery and other fields as well.

articles and publications produced by scientists here are as important as the projects carried out by professors.

Innovation, on the other hand, is the application of these discoveries to technology.

The requirements for successful innovations in the market are:

- A real problem,
- A visionary customer,
- Resources,
- A solution idea (initial ideas are often insufficient and mature over time),
- Trial and error (belief and persistence, not giving up),
- A team open to different perspectives,
- Consultation from real experts,
- Staying focused; deepening knowledge in core areas,
- Evaluating innovation opportunities in related fields,
- Adapting to market conditions,

Successful innovation examples from abroad:

The most successful examples in this regard are Airbnb and Uber.

Airbnb originated as an idea when, during a major architecture conference in San Francisco, a participant rented out an empty room in their home with an inflatable mattress due to a lodging shortage.

This idea was then supported by software expertise, but it was not very successful in the early stages. Later, with the support of startup investment, it evolved into today's Airbnb. No new discovery was made in this case, but an innovative business model emerged.

In this process, we see that the following conditions mentioned above were met:

1. A real need was identified,
2. Expertise from different fields was utilized,
3. Resources were found,
4. The idea was pursued with belief and determination,
5. A solution was produced using existing IT technologies.

There are many successful innovations in Turkiye as well. Getir and similar companies can be cited as examples.

Although such innovations generally appear to be made in digital technologies, there are many examples of success in machinery and other fields as well.

As a small example of success in this regard, I would like to mention our innovation process in vacuum furnaces.

Vacuum furnaces are the most technologically advanced furnaces in the heat treatment process, but they could not be produced in Turkiye.

In 2003, we started our journey to produce vacuum furnaces with an R&D project supported by TÜBİTAK. Due to the lack of sufficient knowledge in this field in Turkiye, we received consultancy from Peter Schmetz, a world-renowned expert on vacuum furnaces. While still in the design phase, we visited Mr. Levent Ganiyusufoğlu, Chairman of the Board of Directors of ASSAB Korkmaz, and received more support than we expected. He stated that vacuum furnaces were a great need for the industry and expressed his desire to purchase our product,

which was still in the project phase. This was a great source of motivation for us. With this motivation, we completed our project very quickly and successfully in 2004.

From this process, we can draw the following conclusions for innovation: During this process, we observed the following conditions mentioned above:

1. Real need
2. Seeking advice from experts in the field,
3. Establishing contact with the **first customer** who will purchase the product,
4. Adaptation to market conditions,

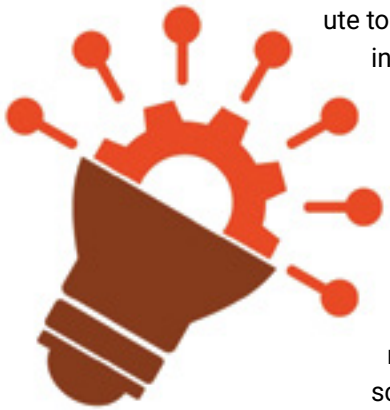
After that, in order to deepen our knowledge in this field and increase our competitiveness, we focused on increasing the cooling speed, which is a very important requirement in vacuum furnaces. As a result of our research, we found that hydrogen gas provides twice as fast cooling as traditional nitrogen gas. However, there was a safety issue due to the flammability and explosiveness of hydrogen. We obtained two internationally valid patents for innovative solutions regarding the safe use of hydrogen in vacuum furnaces. With a new project supported by TÜBİTAK, we developed the world's first vacuum furnace capable of hydrogen quenching that can be used in commercial heat treaters.

During this process, ASSAB Korkmaz, as a visionary customer, supported our furnace for the R&D of performance improvement of their own steels. While developing this furnace, we received support from highly valued experts on plant safety and certified its safety with an inspection certificate from TÜV Nord in Germany. However, this project did not achieve the commercial success we expected. After the first prototype furnace, we were only able to sell the second one 20 years later. The reason for this was that hydrogen gas was more expensive until recently and people were wary of hydrogen. Today, with hydrogen becoming an important player in energy conversion, interest in hydrogen quenching is growing rapidly. The conclusions we draw from this are as follows:

1. A visionary customer is crucial for innovation success.
2. Deep focus and persistence are required.
3. A team and resources are essential for product development.
4. Market acceptance of every innovation may take time.
5. A new paradigm may be needed:

Following the above examples, I would like to share my thoughts on what can be done for the innovation ecosystem in Turkiye. In our country, R&D and Design Centers play a crucial role in developing innovative, value-added products.

In addition, there are TÜBİTAK and KOSGEB research grants available for companies and individuals without R&D centers. However, the innovative products resulting from these grants are mostly unable to be commercialized and contribute to the economy. For an innovative product to be commercialized, there must first be at least one customer who needs that product. If this cannot be achieved, unfortunately, our country's scarce resources are wasted. I believe we should introduce a new concept called "FIRST CUSTOMER support or incentive."



In order for an innovative product to be commercialized, there must first be at least one customer who needs that product. If this cannot be achieved, then unfortunately our country's scarce resources are wasted

The work done should not remain as R&D projects; our country should continue to support them based on their commercial success. In this context, while I find TÜBİTAK's support programs with codes 1832 and 1833 very valuable, I believe that instead of encouraging the company conducting R&D to produce a prototype, encouraging the company that wants to purchase that prototype would be much more beneficial for the commercialization of that product. Additionally, I believe that the university-industry collaboration is not as efficient as desired. Unfortunately, we are unable to find professors with expertise in niche areas such as LPC, which we are currently working on. Our professors want to be involved in projects, but there is a lack of focus on specific topics and exploratory research. My suggestion for the development of this field is that our professors should be seriously rewarded for their scientific publications and the citations they receive in international publications. We must develop a culture of innovation for a stronger Turkiye, allocate more resources to R&D in both the public sector and our companies, and not fall behind in the science and technology race.

Mehmet Özdeşlik
May 30, 2025

ANOTHER SUCCESS STORY FROM SARVION AND SKF:

6 VERTICAL VACUUM FURNACE REVISIONS SUCCESSFULLY COMPLETED

Last year, at the request of SKF—one of the world's leading bearing manufacturers—SARVION successfully completed the retrofit of 3 vacuum furnaces to make them suitable for Silicon Nitride production. The high satisfaction and technical success achieved in this project advanced the collaboration between SKF and SARVION, leading to the continuation of the project.

Following this, the revision of an additional 6 vacuum furnaces has also been successfully completed. A successful pre-acceptance was carried out together with SKF representatives after the retrofits. The furnaces are now being prepared for shipment to Sweden!

At SARVION, we take pride in participating in such high-engineering-demand projects and in building strong partnerships with leading industrial companies on a global scale.

IMPORTANT INDICATOR IN PREVENTIVE MAINTENANCE OF VACUUM FURNACES:

LEAK RATE

Andaç Güzel - Aichelin ST Vacuum, Director

Leak rate has emerged as a critical indicator for vacuum furnaces over the years, as quality expectations have increased for both the final product and the process, and in parallel with the ever-present issue of energy efficiency. No unit left under vacuum is completely leak-proof. In vacuum furnaces, there are acceptable leak rates to protect the graphite insulation of the furnace and to prevent the product from being affected by oxygen and other gases during the process. Especially in vacuum furnaces used for steel heat treatment, this value should be lower than 5 10^-3 mbarltr/sec. In newly commissioned furnaces, the value is higher due to the gas emission of the materials used in the furnace under vacuum, and a value of 5 10^-2 mbar/sec is considered appropriate. The actual leak rate can be seen after the furnace has been in operation for at least a few months. The leak rate in our vacuum furnace is calculated as follows

$$\text{Leak Rate} = \frac{\Delta P \times V}{\Delta t} \text{ mbar x ltr/ sn}$$

AP=final vacuum value-initial vacuum value (mbar) V= Vacuum furnace body volume (liters) At= Final measurement time-initial measurement time (seconds) We can calculate it with the formula. Another measurement method involves measuring the change in vacuum over an hour in microns Hg or torr. The measurement and monitoring of the leak rate are important for the following reasons:

1. Maintaining Vacuum Quality
   A low leak rate improves surface quality in the material and prevents intergranular oxidation.
2. It is important in terms of process repeatability.
   A high leak rate causes the vacuum level in the furnace to change, disrupting the consistency of process parameters (temperature, pressure, gas composition). This can lead to inconsistent results between different batches.
3. Energy Efficiency
   A high leak rate extends the initial vacuuming time, causing vacuum pumps to operate longer and increasing energy consumption. This raises operating costs.
4. Preservation of Material Properties
   Especially in vacuum thermal treatments conducted at high temperatures, atmospheric gases reacting with the material surface due to leakage can negatively affect material properties and darken the surface color.
5. Poor leakage rates also affect graphite insulation and shorten the hot zone lifespan.
6. Leak rate is an important parameter, especially in NADCAP approvals. Aichelin vacuum furnaces have a very high sealing capacity with a leak rate of 5x 10^-3 mbarltr/sec or 5 microns.

As a result, leak rate is of great importance in vacuum heat treatment furnaces in terms of process quality, efficiency, and safety. A low leak rate provides advantages in terms of both performance and operating costs.

toRRvaC
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As toRRvaC, our business approach is first to identify the problems and needs, to find the vacuum pump and system suitable for our customers, and then to integrate the system into your production facility. The critical point here is to determine the right vacuum pump system for your needs.

ToRRvac is an authorized sales and service points all over Turkey of Agilent, PVR Vacuum Design, brands such as Ulvac.

Having a high level of expertise in maintenance, repair and service services, toRRvaC serves its customers with a “full service concept”. Some of the services we provide:

- Vacuum pump maintenance, repair and installation
- Vacuum system design
- Equipment supply
- Leak detection with helium detector
- Creating process prescriptions and system control by performing gas analysis
- Maintenance, repair and calibration of helium detectors

We also provide services to world-wide known brands such as Edwards, Leybold, Ulvac, Pfeiffer, Busch, Inficon.

The vacuum pumps and helium detectors that are used in the production facilities of Sistem Teknik, Tüpraş, THY, Tubitak, Roketsan, Algida, Arçelik, Schneider, Best Transfarmatör, Valeo, Vastaş Vana which are ones of the biggest firms in Turkey, are under assurance of ToRRvac.

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SISTEM TEKNIK TAKES ITS PLACE AGAIN IN THE GLOBAL FIRE RESISTANCE INDUSTRY !

Renowned for its expertise in fire resistance test furnaces, Sistem Teknik Industrial Furnaces has once again taken its place on the international stage by sponsoring this year's annual meeting of eGOLF (European Group of Organisations for Fire Testing, Inspection and Certification), held in Dubai.

Taking place from April 8–10, 2025, the event brought together leading industry professionals and organizations. During the three-day gathering, participants engaged in comprehensive sessions on the latest developments in fire safety, as well as testing and certification processes. For Sistem Teknik, it was a valuable opportunity to closely follow sectoral advancements and strengthen global collaborations.

As part of the event, Sistem Teknik delivered a corporate presentation showcasing its technical capabilities in fire resistance testing, extensive product portfolio, and decades of industry experience. The presentation received considerable interest from attendees.

Consistent with last year, this year's participation in the eGOLF event was a strategic step toward enhancing the company's international brand recognition. Moreover, the platform provided a meaningful opportunity to contribute to global fire safety initiatives and foster strong partnerships with key players in the sector.

With its engineering strength in fire resistance test technologies, Sistem Teknik remains committed to playing an active role in leading industry organizations, creating value for the sector, and advancing international cooperation.

ESTA TRANSFORMERS

ABOUT US

Established in 1998, ESTA Transformer brings nearly three decades of expertise and engineering experience to the energy sector.
Operating from our production facility in Istanbul, Turkey, we manufacture both standard and fully customized solutions based on customer-specific requirements.

We are capable of producing all types of transformers, as well as:
- Special-purpose reactors (current-limiting, harmonic filtering, etc.),
- Industrial rectifier systems,
- Automatic voltage regulators,

all designed and built entirely in-house.

Our operations strictly adhere to ISO 9001, ISO 14001, and ISO 45001 standards, ensuring high-quality manufacturing and environmental responsibility.
We support every stage—from concept design to field application—with advanced engineering tools such as ANSYS Maxwell, AutoCAD, and E-Plan, handled by our skilled technical team.
Upon request, we provide CE, TSE, ATEX, UL certifications, and type test reports to support the technical credibility of our products.




OUR PRODUCT RANGE

At ESTA Transformer, our extensive engineering background and flexible production capabilities allow us to design and manufacture **all types of transformers and custom-built power systems.**

Beyond standard models, we provide tailored solutions designed to meet the specific needs of various industries.

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- Dry-Type Power Transformers (Cast Resin / Air-Cooled)
- Low Voltage and Medium Voltage Distribution Transformers

Special Purpose Transformers
- Furnace Transformers
- Test and Laboratory Transformers
- Impedance Bond Transformers
- Isolation Transformers
- Auto Transformers and Step-up / Step-down Systems

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- DC and AC Choke Reactors
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We are all familiar with Management by Objectives. BUT WHAT ABOUT MANAGEMENT BY PROBLEMS?

Tuğrul Fadıllıoğlu - Sistem Teknik Sanayi Fırınları A.Ş. Independent Board Member

In this article, I would like to introduce a model called **"Management by Problems"**, which is not very common in the business world but can be extremely effective.

Every problem is an opportunity for learning and growth. But only if it is addressed systematically and resolved permanently.

Why Management by Problems?

In daily life, we naturally want to avoid problems. However, sustainable success in business lies not in the comfort zone but in our ability to continuously identify and solve problems.

Even when we think everything is going smoothly, competition is always on our heels. And often, when we say "there's no problem," we might actually be missing the issues.

The 3 Areas a Manager Should Monitor:

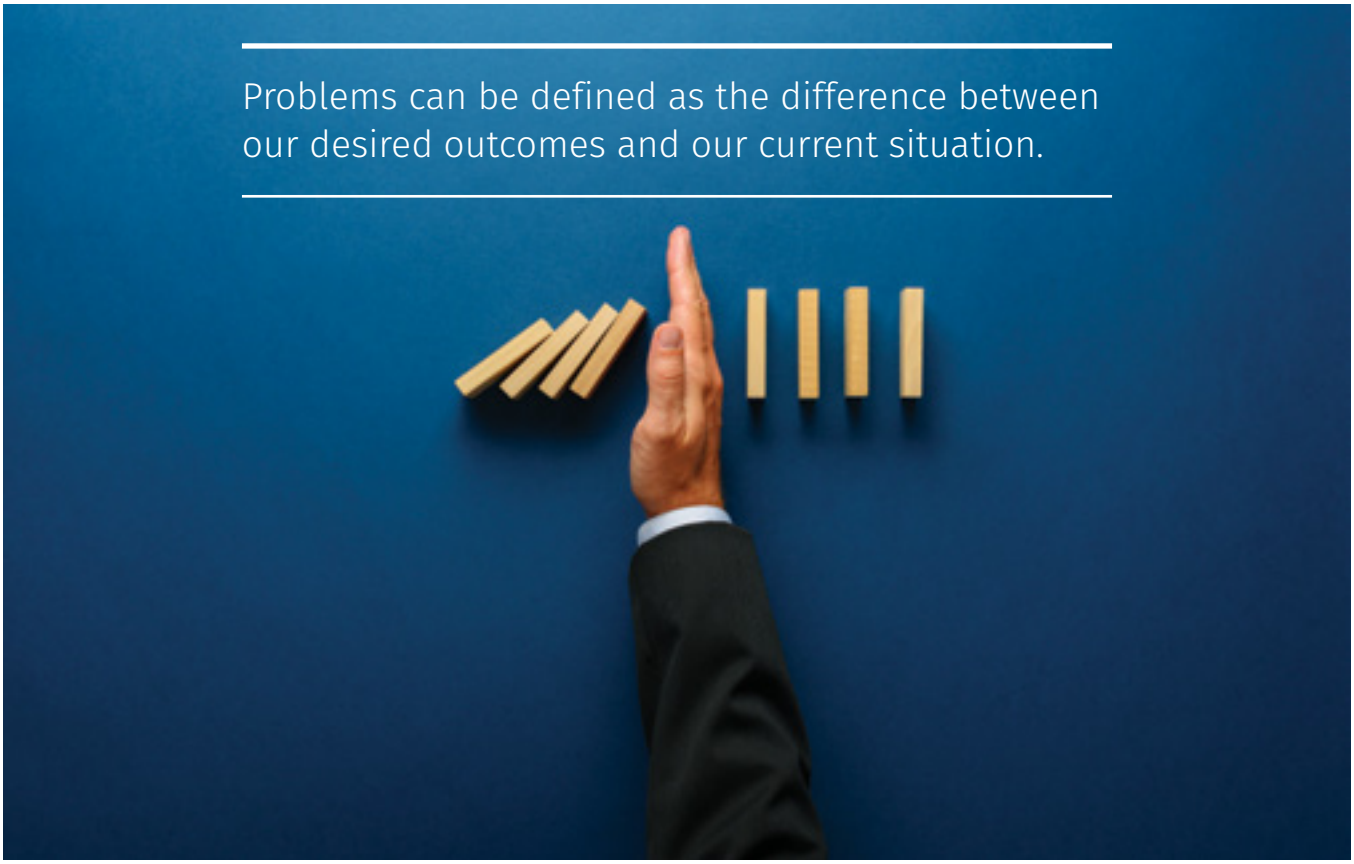
1. The External World: Economic, social/political developments, and regulations
2. Business Results: Financial and non-financial performance indicators
3. The Activities That Create These Results: What are we doing, how are we doing it, and how well are we doing it?

The first two areas typically show us risks, opportunities, and symptoms. The third area is our field of action, the source of the real solution.

Problems can be defined as the difference between our desired results and our current situation.

We can identify and classify problems in the following categories:

- The gap between us and the opportunities in the market
- Our level of vulnerability to risks arising from external factors
- The aspects and levels of our products and services that lag behind customer expectations or competitors
- The differences between us and the best in our industry, as well as in terms of quality, efficiency, cost, and delivery performance
- Costs of poor quality and inefficiency



When identifying problems, we often start with the causes rather than the symptoms. This approach can also cause us to waste time.

- Unnecessary inventory, working capital, and financial costs caused by non-value-added activities

If we can express the impact of these issues on us in monetary terms, prioritization becomes easier.

When identifying issues, we often start from the middle, addressing the causes rather than the symptoms. This approach can also cause us to lose time. If we start with the symptoms, our ability and likelihood of identifying and eliminating all the factors causing the real issue increases.

Critical Steps: Selecting and Defining the Problem Correctly, Prioritizing, Addressing, Monitoring

- When selecting a problem, we should choose the one that will lead us to success, not the one that is "fun to solve." When prioritizing, a mathematical model based on the criteria of the magnitude of the gain and ease of access can be used.
- Defining the problem completely and clearly is the foundation of the solution process.
- The issue must be addressed to the right people with a clear agreement.
- Monitoring and resource allocation are management responsibilities.

The same issues are often discussed repeatedly in management meetings for the following three reasons:

1. Problems are not fully defined in terms of their scope and financial impact in a way that everyone can understand.
2. Inadequate prioritization and addressing of issues
3. Failure to follow up on issues until a permanent solution is found

The Management Approach to Issues can enable sustainable success by transforming issues into opportunities for growth. This perspective can give our company, our team, and our leadership a new momentum.

A POWERFUL TECHNICAL GATHERING BY SARVION:

FURNACE UP 2

As a group company of Sistem Teknik A.Ş., SARVION successfully held the second Furnace UP seminar series on February 27, 2025, in collaboration with EFSİAD (Association of Industrial Furnace Manufacturers and Businesspeople). The event aimed to promote industry knowledge sharing and technological advancement, bringing together more than 150 professionals from the heat treatment and furnace technology sectors in Istanbul. The seminar, which focused on innovations in industrial furnace and heating technologies, featured contributions from both domestic and international experts and proved to be highly productive.

Highlights from the Seminar

The Furnace Up 2 seminar featured five technical presentations delivered by leading companies in their fields. Participants had the opportunity to gain in-depth insights into the latest technologies and regulations in the sector:

- **Self-Recuperative Combustion Technology in the Aluminum Industry – Wiedemann Noxmat**
  This presentation showcased how new-generation combustion technologies offer more efficient and environmentally friendly solutions in aluminum production processes.
- **Carbon Border Adjustment Mechanism (CBAM) in Europe – SARVION**
  A detailed analysis of the EU's carbon regulations and calculation methods for taxation was presented, discussing how industrial players can get prepared for this transformation.
- **Current Trends in Vacuum Heat Treatment – Aichelin ST GmbH**
  The development of vacuum technologies in heat treatment was discussed in terms of sustainability and energy efficiency.
- **Regenerative Combustion Retrofits and Hydrogen Applications in Melting Furnaces / Regenerative and Hydrogen Combustion in North America – Fives North American**
  Technical data and upgrade examples were shared on the applicability of hydrogen energy and regenerative systems in melting furnaces.
- **Green Transformation: Induction Technology for Efficiency and Low Emissions – Fives Celes**

The role of induction systems in reducing environmental impact and their potential in the industry were explored.

Technology, Sustainability, and Collaboration Focus

Throughout the seminar, topics such as energy efficiency, low-emission technologies, compliance with European regulations, and green transformation served as the main themes. Following the technical presentations, interactive Q&A sessions provided opportunities for participants to exchange ideas and strengthen industry connections.

An Open Invitation from SARVION to the Industry

SARVION representatives stated that the Furnace Up seminar series will continue regularly with the aim of contributing to sustainable growth in the industry. The company will maintain its commitment to fostering knowledge sharing and collaboration through this platform that brings together professionals from across the sector.

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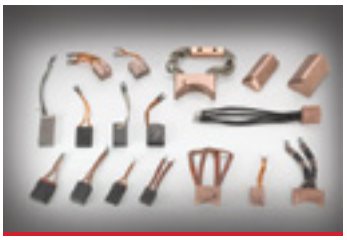
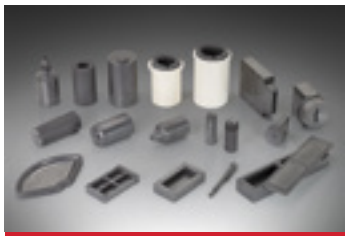
Aluminum Industry Applications

Continuous Casting Applications



Electricity and Rail System Applications

Mechanical Applications



Jewelry Applications

Plunge Erosion Applications (EDM)

Sintering and High Temperature Applications

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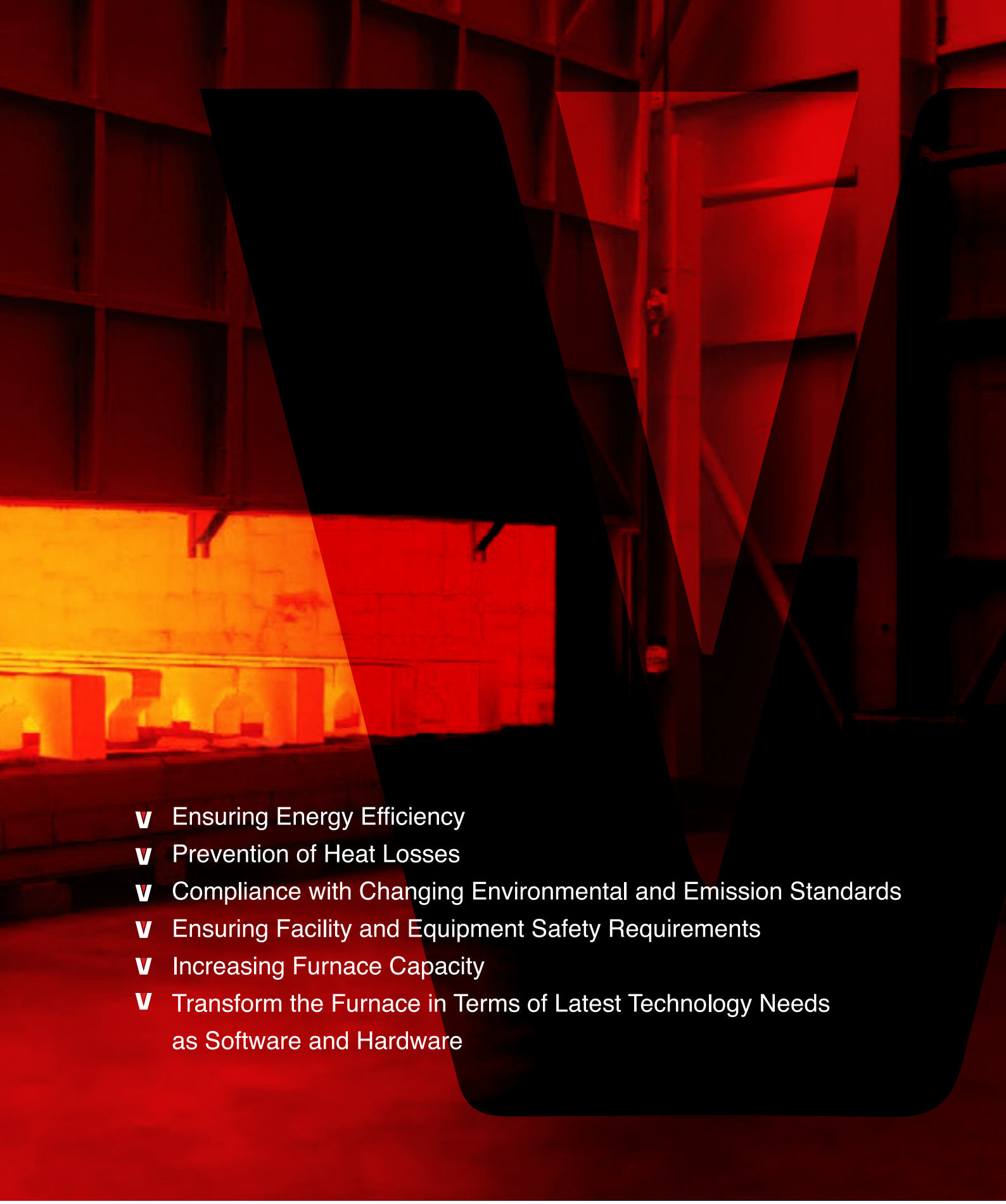
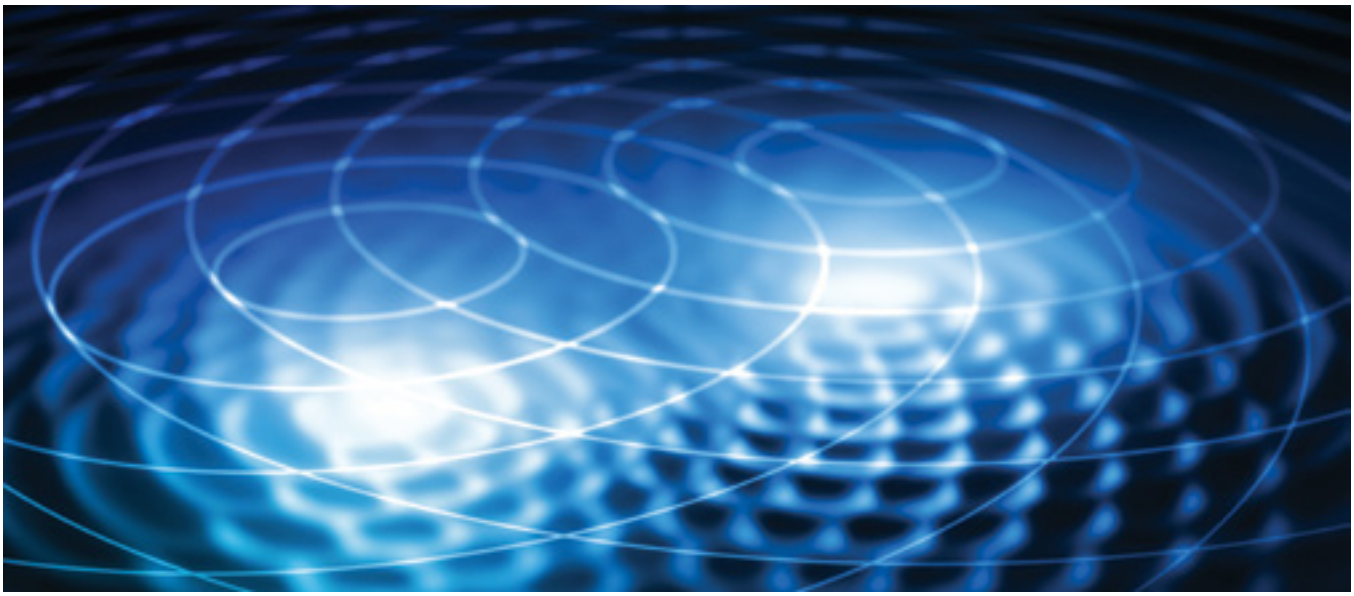


- Ensuring Energy Efficiency
- Prevention of Heat Losses
- Compliance with Changing Environmental and Emission Standards
- Ensuring Facility and Equipment Safety Requirements
- Increasing Furnace Capacity
- Transform the Furnace in Terms of Latest Technology Needs as Software and Hardware

As Sarvion, we support you in maintenance, service, revision and modernization for your furnaces of all brands and models.

WHAT IS THE MAIN DIFFERENCE BETWEEN EMC CABLE AND VFD CABLE?

Tacettin İkiz - Üntel Kablo, Factory Manager



EMC (Electromagnetic Compatibility) cable is a type of cable that is designed to prevent or reduce electromagnetic interference (EMI) in systems and equipment. EMI is the unwanted electrical energy that can disrupt or damage electronic devices and systems. EMC cables are typically constructed with shielding layers that surround the conductors, made of materials such as copper, aluminum, or a combination of both. This shielding helps to reduce the amount of EMI that enters or leaves the cable.

VFD (Variable Frequency Drive) cable, on the other hand, is a type of cable that is specifically designed to be used with Variable Frequency Drives (VFDs). VFDs are devices used to control the speed of motors and other equipment. The cables that connect to VFDs need to be able to handle the high-frequency voltage and current that they produce. VFD cables typically have thicker insulation and shielding than standard cables to protect against the electrical noise generated by VFDs.

In summary, the main difference between EMC cable and VFD cable is that EMC cables are designed to reduce or prevent EMI through the use of shielding layers, while VFD cables are designed specifically to handle the high-frequency voltage and current that is generated by VFDs and are specially designed to have thicker insulation and shielding to protect against the electrical noise generated by VFDs.

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THE RIGHT SOLUTION FOR TRANSFORMER DRYING TAILORED TO YOUR NEEDS

Interviewee – Gürkan Can Dt & Dry Type Transformers Production Manager

The most important advantage of our System Teknik Furnace is that it is a very reliable furnace in terms of occupational safety, as we do not use solvents in the process. It is very successful in terms of software and ease of use. Even a new employee can quickly learn the working principle and adapt to using the furnace.

We'd like to briefly introduce you to our readers. Could you tell us a bit about your company and your role?
I am an Electrical & Electronics Engineer. I completed my Master's degree in Business Administration. I have been working at BEST Inc. since 2006, for 19 years. I started as a Sales Engineer at BEST and worked in Domestic and International Sales for approximately 5 years. - I have been serving as Distribution Transformers and Dry Type Transformers Production Manager. In order, I served as Assistant Sales Manager, Power Transformers Production Manager, Project Management Department Manager, Power and Distribution Transformers Production Manager, Customer Service and Support Manager, and since 2021, I have been serving as Distribution Transformers and Drying Transformers Production Manager.

Which products and services of Sistem Teknik do you utilize in your field?
We use the design, manufacture, installation, and commissioning services of transformer drying furnaces from Sistem Teknik, which enable us to carry out the drying and dehumidification process, which is a very important and mandatory process, especially in the transformer production process.

What types of processes are carried out in the furnaces you use in your production lines?
In transformer production, since the insulation materials and wood materials on the coils and active parts contain moisture during production, it is very important for the operational life of the transformer to remove this moisture from the cellulose-containing insulation materials and wood materials used on the coils and active parts. For this reason, we reduce the moisture to the target level by removing it with the coil drying and active part drying processes in the production process.

What are the main advantages of using Sistem Teknik furnaces?
The transformer drying furnace we recently purchased from Sistem Teknik works on the principle of vacuum air drying. The use of

transformer air-drying furnaces has become widespread, especially in oil-filled distribution transformers up to 72 kV. The most important advantage of our Sistem Teknik furnace is that it is very reliable in terms of occupational safety, as we do not use solvents in the process. It is quite successful in terms of software and ease of use. Even new personnel can quickly learn the working principle and adapt to the use of the furnace.

Can you explain how the furnace manufactured and installed by Sistem Teknik contributes to your processes?

I can say that the process from the initial proposal stage to the final commissioning process with Sistem Teknik was highly efficient from our perspective. First, we communicated our product specifications, process objectives, desired outcomes, and target values during the initial proposal stage meetings and discussions, and it was crucial that the

product design and proposal were tailored accordingly. During the production process, we visited the company to conduct on-site inspections and made mutual improvements to bring the furnace to its optimal level.

How would you evaluate your collaboration with Sistem Teknik and the general progress of the services?

We are highly satisfied with the services we received from Sistem Teknik and the performance of our furnace. Working with a corporate firm that understands our needs and requirements, and with the expertise, knowledge, and guidance of the individuals at ST, we successfully completed our investment together. I would like to once again thank Mr. Berk, Mr. Andaç, Mr. Ozan, and Mr. Ahmet Can. I apologize to our other friends whose names I have omitted, and I thank everyone who contributed to this project. I believe that the furnace will serve BEST A.Ş. reliably for many years to come, in accordance with our quality criteria.

Finally, would you like to share BEST Transformer's goals and future plans with our readers?

BEST Inc. has a production capacity of 50,000 MVA, a production area of 170,000 square meters, exports to over 110 countries, and holds the largest transformer production capacity of Turkiye.

Founded in 1966 in Balıkesir by the YIRCALI family, Balıkesir Electromechanical Industry Facilities Inc. (BEST) is the first high-voltage transformer manufacturer of Turkiye, established with 100% domestic capital.

> BEST Inc. has a production capacity of 50,000 MVA, a production area of 170,000 square meters, exports to more than 110 countries, and has the largest transformer production capacity in Turkiye.

Our company, which serves various sectors such as leading global electricity institutions, steel producers, oil and gas companies, and solar and wind energy projects, continues to increase its export ratio every year.

BEST Transformer will continue to be a pioneer in the industry, setting new standards and breaking world records. Over the past 20 years, BEST Inc. has achieved significant growth through its investments, reaching a workforce of over 1,500 employees across its factories in the Balıkesir OSB and ASB regions. BEST Inc.'s growth continues with ongoing investments. Recently, we have been investing in increasing the production capacity of power transformers and establishing a new testing laboratory. Despite the increasing energy demand in Turkiye and worldwide, we will continue to offer the most suitable solutions to our customers' needs without compromising our quality principles.

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TURKIYE'S LARGEST VACUUM HEAT TREATMENT FURNACE AT VESTA TP!

Vesta Thermal Processes is established in Kocaeli! Vesta is preparing to offer services for specialized processes with innovative technologies and a commitment to high quality!

Scheduled to begin operations in July 2025 at the TOSB Organized Industrial Zone, the company will provide the necessary capacity especially for the heat treatment of large molds.

With its usable dimensions of 1,600 x 1,600 x 2,000 mm, the furnace will be the largest vacuum furnace in Turkiye, serving both commercial heat treaters and end users.

THE IMPORTANCE OF PROCESS QUALITY IN MOLD HEAT TREATMENT

Interviewee: Ali Tanrıseven – Business Unit Director, Norm Tooling

We'd like to briefly introduce you to our readers. Could you tell us a bit about your company and your role?
I'm Ali Tanrıseven. Norm Tooling is a strategic business unit specialized in the production of cold forming dies. We serve both the companies within Norm Holding and export markets. With our production approach focused on high precision and quality, we provide solutions to various industries, primarily the automotive sector. With 24 years of experience in production companies, I work as the Business Unit Director at Norm Tooling, supporting strategic development in areas such as production, quality, maintenance, supply chain, lean manufacturing, engineering, and innovation.

Which products and services of Sistem Teknik do you utilize in your field?
At Norm Tooling's in-house heat treatment facility, we use Sistem Teknik brand vacuum heat treatment furnaces and cooling cabinets. These furnaces play a critical role in imparting the necessary mechanical properties to the dies we roughly machine. We also regularly benefit from their comprehensive services such as periodic maintenance, technical support, critical spare parts, and process assistance.

What types of processes are carried out in the furnaces you use in your production lines?
In our furnaces, we perform heat treatment processes such as quenching, tempering, and sub-zero treatment. These processes increase the hardness and wear resistance of our dies, while also maintaining the desired toughness characteristics within the internal structure in a homogeneous way. As a result, we maximize both product quality and service life.

What are the main advantages of using Sistem Teknik furnaces?
One of the biggest advantages of Sistem Teknik furnaces is their high process control capability and energy efficiency. Additionally, they offer great reliability and operational stability. Their user-friendly interfaces and fast service support are also key benefits that help ensure production continuity. As a local manufacturer, the company also excels in terms of accessibility and responsiveness.

Could you explain how Sistem Teknik's maintenance, repair, and service offerings contribute to your furnaces and processes?
To maintain the performance of our furnaces, regular maintenance and technical support services are crucial. Sistem Teknik's expert team can intervene quickly whenever we need them, helping us minimize downtime. This ensures our production plans remain uninterrupted and

our quality standards are consistently met.

How would you evaluate your collaboration with Sistem Teknik and the general progress of the services?
Our collaboration with Sistem Teknik is highly productive and sustainable. Their technical knowledge sharing, solution-oriented approach, and customer satisfaction-focused service mindset provide us with great confidence. Strong mutual communication and coordination are also key pillars of this partnership.

Finally, would you like to share Norm Tooling's goals and plans with our readers?
At Norm Tooling, our primary goal is to continue developing high-quality, innovative solutions tailored to customer needs. With our investments in R&D and digitalization, we aim to further improve our processes and enhance our competitiveness in both domestic and international markets. We will continue to add value to our industry through sustainable production and technologically advanced production lines.

> Our collaboration with Sistem Teknik is proceeding in a highly efficient and sustainable manner. The sharing of technical knowledge, solution-oriented approach, and service principles that prioritize customer satisfaction provide us with a high level of confidence.

“SISTEM TEKNIK PROVED ITS PROFICIENCY IN SPECIAL TYPES OF FIRE TESTING FURNACES”

Interviewee: Managing Director, Efectis Netherlands

Could you please briefly introduce yourself and Efectis Netherlands services and profficiency?
Efectis Nederland, part of the Efectis group with over 15 locations in Europe and more than 350 employees, is a fire safety engineering company with over 70 years of experience in fire safety. We offer a wide range of accredited tests to determine to the reaction to fire and fire resistance of any product and system ranging from construction products, rail & transport, oil & gas to infrastructure & tunnels. Tests can be performed on laboratory scale and full scale. On top of our testing we offer assessments, fire safety & explosion engineering, certification, audits and inspections purely focused on any fire or explosion topic.

What kind of tests you perform and how would you describe the laboratory testing capacity?
Our laboratory tests can be separated mainly in 3 categories: Reaction to fire, Resistance to fire and ad hoc testing. In the last category we can perform either standardized or specifically designed tests to assess a fire related performance or situation.

Both reaction to fire as resistance to fire are mainly focused on determining the performance in relation to European or national regulations.

Reaction to fire focusses on the contribution in fire growth by a certain material, product or system whereas resistance to fire focusses on maintaining compartmentation to prevent fire spread.

All our testing involves exposure to realistic temperature-time curves. To show the magnitude of exposure, for elements used in tunnels our furnace exposes the product under test up to 1350 °C using 8 1 MW gas burners.

Resistance to Fire testing occurs in a challenging environment. We know that recently you renovated the testing furnace with Sistem Teknik. How would you evaluate the big renovation Project?
Testing materials on a daily basis with these kinds of exposures imposes the need for regular and severe maintenance. In this case the complete lining of our 4 x 4 x 2 m horizontal furnace needed to be completely replaced. Together with Sistem Teknik we took the opportunity to improve the loading capabilities of the furnace and build the walls from scratch using the highest quality brickwork capable of withstanding the exposures we use on a daily basis while also satisfying the requirements of the applied test methods.

To adhere to our busy test schedule a long period of downtime was unacceptable. Each step in the process was carefully planned and together with Sistem Teknik we were able to perform the complete process and full relining within 4 weeks including curing the newly assembled brickwork.

> Working with a manufacturer who is located at a long distance from your lab with our short time slot has always many challenges. Fortunately, Sistem Teknik is very flexible in the planning

Are you happy to work with Sistem Teknik and why?
We had some special requests and needs in the design of the new walls based on our experience from earlier maintenances and other furnaces within the group. With Sistem Teknik each detail can be discussed, and together we were able to design and implement creative solutions.

Working with a manufacturer who is located at a long distance from your lab with our short time slot has always many challenges. Fortunately Sistem Teknik is very flexible in the planning and even if we had some challenges with for example the transport of the materials over more than 3000 km, we managed to reach the planning in time.

Now, after using the furnace again for over 6 months, we can say that the quality of the used materials, the design of the brickwork and dilatation systems as well as the work performed to create the walls is of a very professional level and shows their expertise in the field this specific type of furnace which is less than a niche compared to other types of furnaces.

> We are a fire safety engineering firm with over 70 years of experience in the field of fire safety. We offer a wide range of accredited tests on the fire response and fire resistance of all kinds of products and systems, from building products to rail systems and transportation, and from the oil and gas sector to infrastructure and tunnels.

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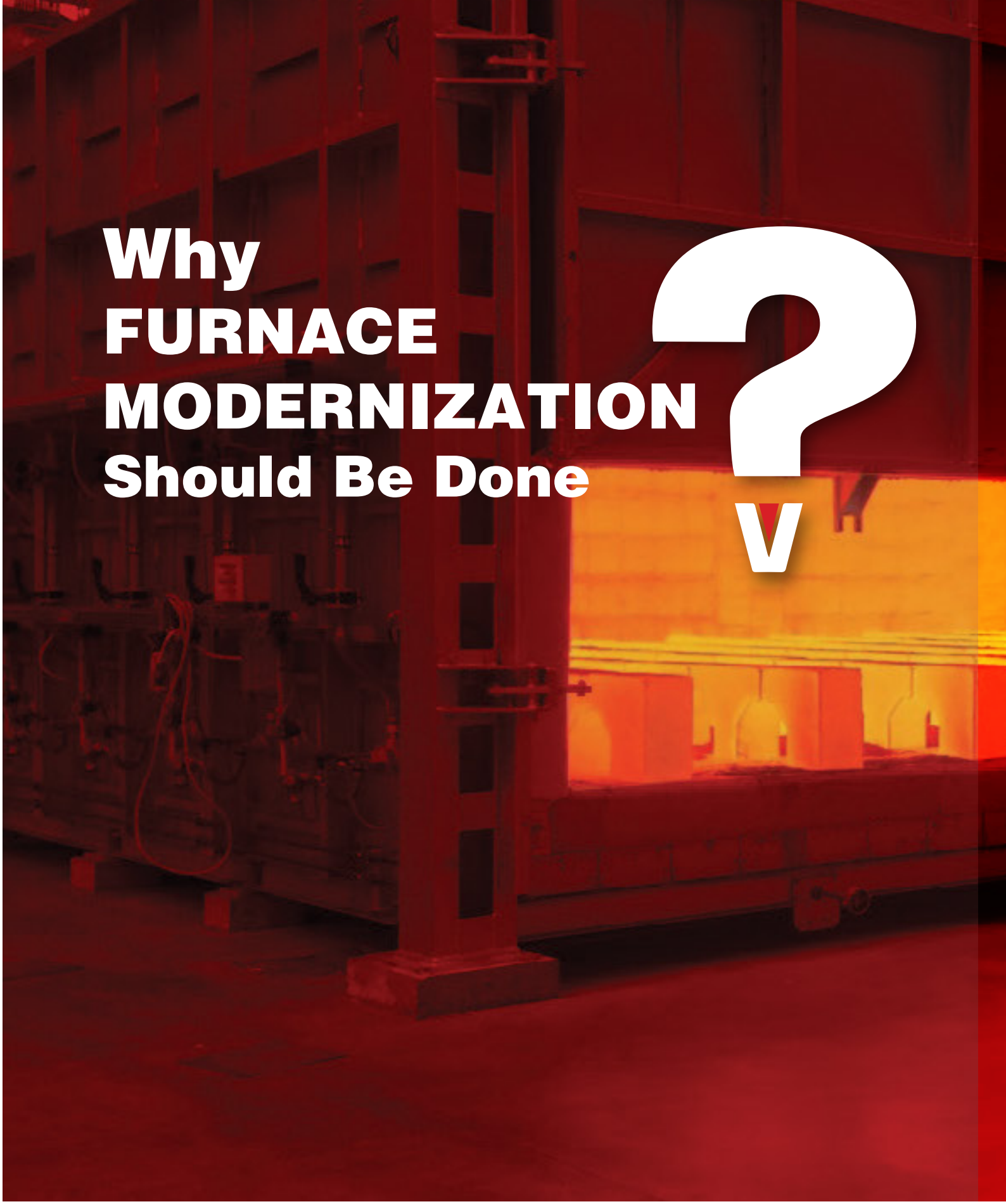

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