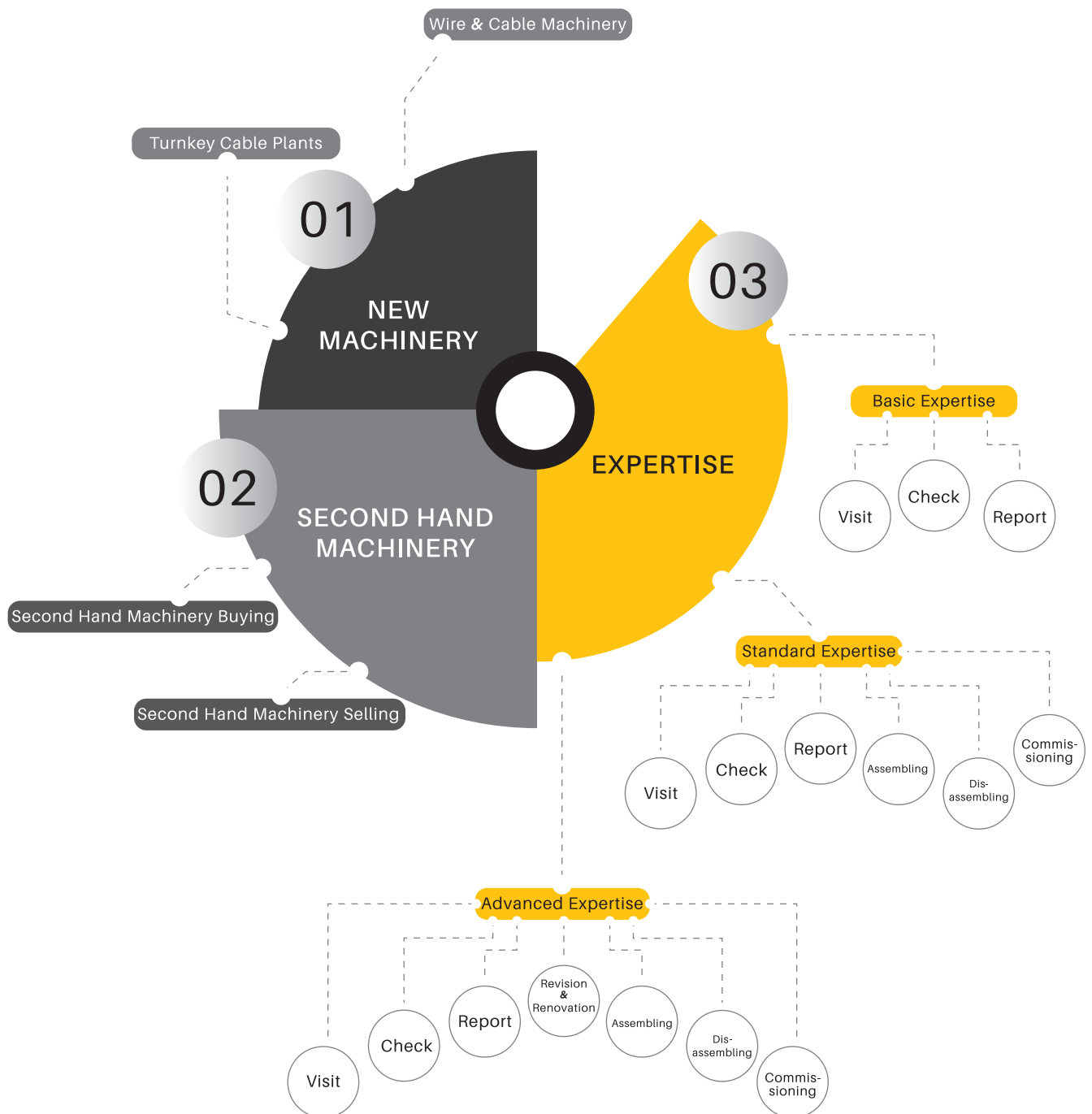




SOLUTION PARTNER FOR CABLE INDUSTRY





ABOUT US

WHO ARE WE?

FACS® was created in 2008 under the roof of APALİ® Group companies, with the purpose of becoming a worldwide brand and providing whole engineering services for Cable Manufacturing Industry with core principles of ETO (Engineer-to-Order) business model.

What does an ETO workflow look like?

An ETO workflow requires extensive quoting and engineering on both our sales side and our technical & product design side.

Here are the core ETO workflow steps that we follow:

Sales Engineering – Our customer outlines what the requirements are and the type of the finished product. Once we receive the RFQ (Request-for-Quote), our sales staff work closely with our product engineers to produce a quote that meets our customer's requirements.

Process Design & Planning – With every single one of our customers, a well-defined, accurate and flexible process design & planning allows us to stay within our wide production capabilities and remain within expected costs and

demands, as we gained our expertise for over a decade this way.

Inventory Management – To keep a specialized production schedule on track, accurate inventory management is critical. Our main goal is to seek best inventory at best values such as; price, delivery time, functionality etc.

Manufacturing, Commissioning – Knowing that engineering and plant installation management are critical in the whole manufacturing process, in terms of ETO, we provide the best pre-sales planning, engineering, manufacturing, commissioning and after-sales services.

Let us find a solution to your design inquiries and help you to produce best product at the end.

Our team of experts have the vision "be open to innovation and research" and are experienced in the cable machinery/automation/electric industry in terms of designing, manufacturing and international trading.

WHAT DO WE DO?



**You don't expect us to
manufacture all the machines, do you?
Together we are more
stronger with our partners."**



- Providing **"ETO-based Engineering Services"**
- **New cable machinery** manufacturing and turnkey cable plant installation
- **Second-hand machinery** supplying, trading, revision, renovation, modernization

WHAT
DO
WE
DO

HOW DO WE DO?

“We maintain a pricing policy in order to satisfy both sides in trades.”

We provide wide range of **“ETO-based Engineering Services”** in Cable Industry including but not limited to:

1. Turnkey cable machinery and cable plant solutions
2. Tailor-made cable machinery and cable plant designs & applications
3. Engineering services

a. Basic Engineering Services (**BES**)

- Surveillance
- Control and Auditing
- Reporting

b. Standard Engineering Services (**SES**)

- BES+
- Disassembling & Dismantling
- Assembling
- Commissioning and Engineering Services

c. Advanced Engineering Services (**AES**)

- SES+
- Revision & Renovation & Modernization

4. Pre-Sales Planning

5. After-Sales Services

6. Technical Consultancy Services

7. Investment Consultancy Services

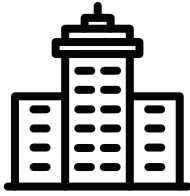
HOW
DO
WE
DO

*Thanks to feasibility studies we do, we ensure that our customers remain **sustainable, competitive** and **preferable** in their focused markets.*

In our **new cable machinery** productions and turn-key projects; we consider mainly demands of our customers, but also production costs in the markets, the availability of raw materials in the area and even sales performance of the product in target markets, those directly affects the ROI (Return-of-Investment).

During revisions, renovations and modernizations we made on **second-hand machinery**, we include innovative features that are accepted at world standards by following latest technology developments.

"Which machines do you need to manufacture cables for following sectors?"



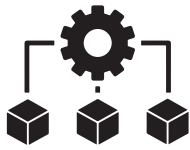
BUILDING

- Casting Line
- Wire Drawing Line
- Double Twister Line
- Taping/Armouring Line
- Extrusion Line
- Coiling Line



COMMUNICATION

- Casting Line
- Wire Drawing Line
- Double Twister Line
- Single Twister Line
- Taping/Armouring Line
- Extrusion Line
- Coiling Line



INFRASTRUCTURE

- Casting Line
- Wire Drawing Line
- Double Twister Line
- Rigid Strander Line
- Tubular Stranding Line
- Bow Strander Line
- Planetary Stranding Line
- Drum Twister Line
- Taping/Armouring Line
- Extrusion Line
- Coiling Line



RENEWABLE ENERGY

- Casting Plant
- Wire Drawing Line
- Double Twister Line
- Single Twister Line
- Rigid Strander Line
- Tubular Stranding Line
- Planetary Stranding Line
- Drum Twister Line
- Taping/Armouring Line
- Extrusion Line
- Coiling Line



AUTOMOTIVE

- Casting Line
- Wire Drawing Line
- Double Twister Line
- Single Twister Line
- Extrusion Line
- Coiling Line



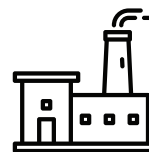
AEROSPACE

- Casting Line
- Wire Drawing Line
- Single Twister Line
- Planetary Stranding Line
- Taping/Armouring Line
- Extrusion Line
- Coiling Line



MINING

- Casting Line
- Wire Drawing Line
- Double Twister Line
- Single Twister Line
- Taping/Armouring Line
- Extrusion Line
- Coiling Line



OIL & GAS

- Casting Line
- Wire Drawing Line
- Double Twister Line
- Single Twister Line
- Planetary Stranding Line
- Taping/Armouring Line
- Extrusion Line
- Coiling Line



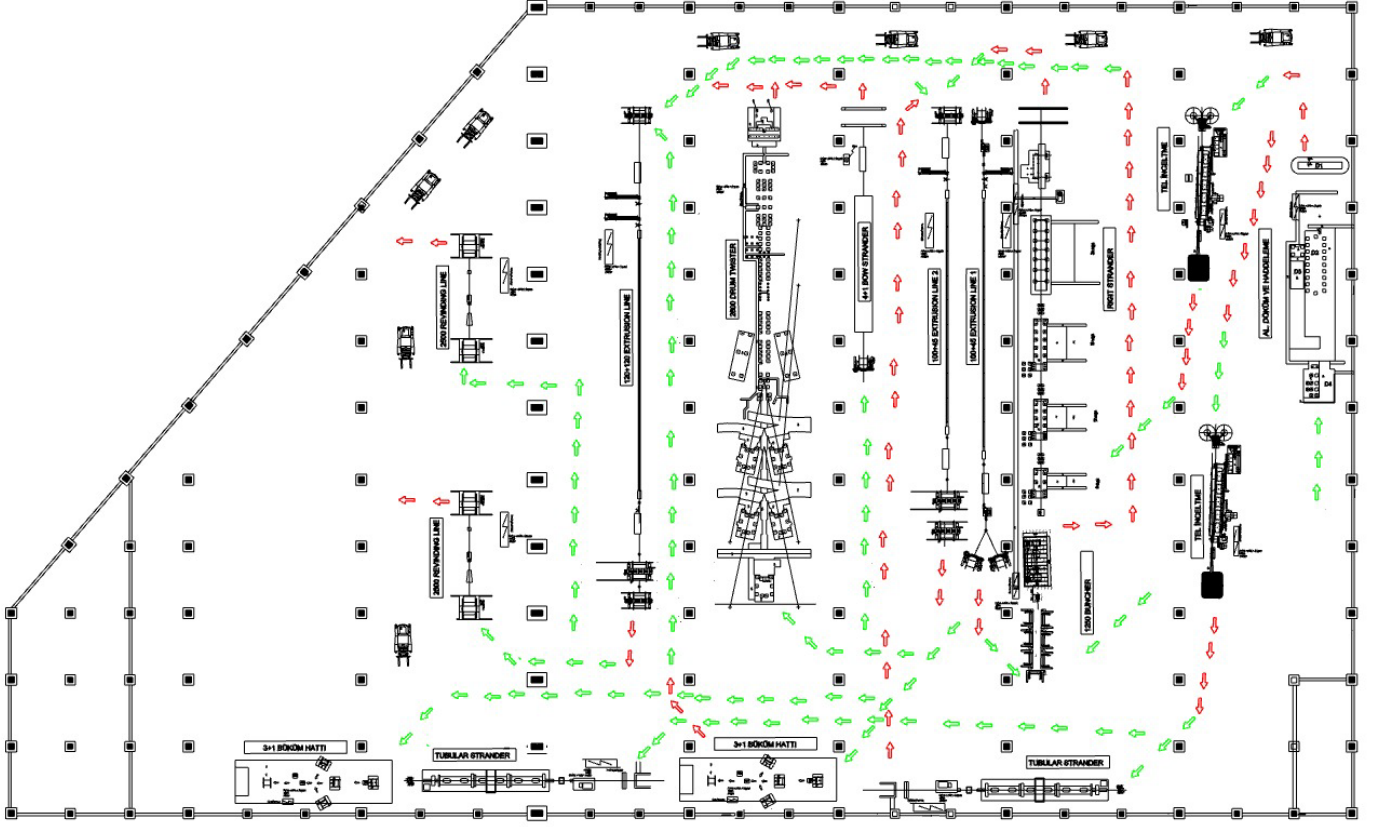
MARINE CABLES

- Casting Line
- Wire Drawing Line
- Double Twister Line
- Single Twister Line
- Taping/Armouring Line
- Extrusion Line
- Coiling Line



CONTROL CABLES

- Casting Line
- Wire Drawing Line
- Double Twister Line
- Single Twister Line
- Tubular Stranding Line
- Planetary Stranding Line
- Drum Twister Line
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- Extrusion Line
- Coiling Line

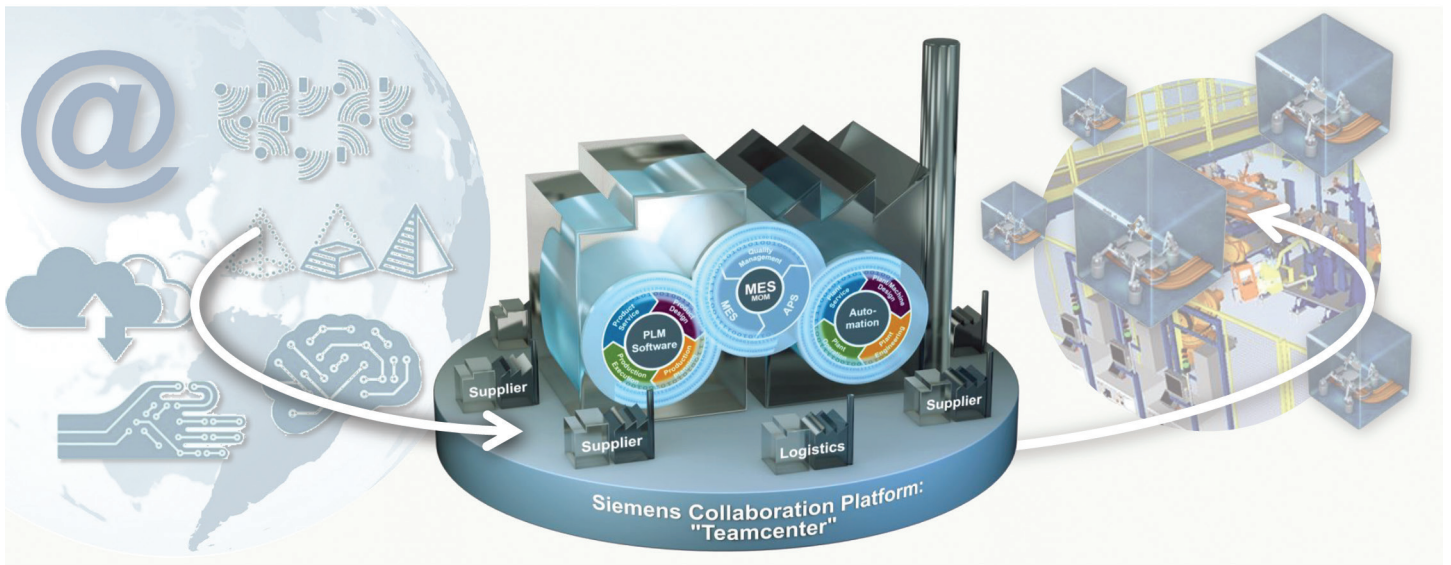


As we follow ETO closely in all our designs, machines that we produce are not limited into this catalog. For further information, get in touch with us at: sales@facs.com.tr Let us find a solution to your design inquiries and help you to produce best product at the end.

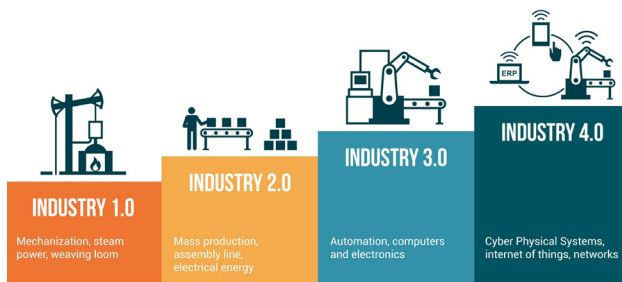


To catch up with the times; being an ETO company requires high engineering skills with turnkey solutions. We integrate our tailor-made industrial solutions within the Industry 4.0 main concept. Being a long-standing, valuable partner for SIEMENS is empowering our engineering skills on both electrical and automation solutions.

SIEMENS



The benefits of Industry 4.0 include improved productivity and efficiency, better flexibility and agility, and increased profitability. Industry 4.0 also improves the customer experience.



- Digital transformation
- More innovation opportunities
- Faster manufacturing
- Less machine and plant downtime
- Less resource and product waste
- Shorter time to market
- Less operating costs
- Boosted productivity
- Improved efficiency
- Better flexibility
- Increased profitability
- Reduced costs

For to find our reference list, please scan;



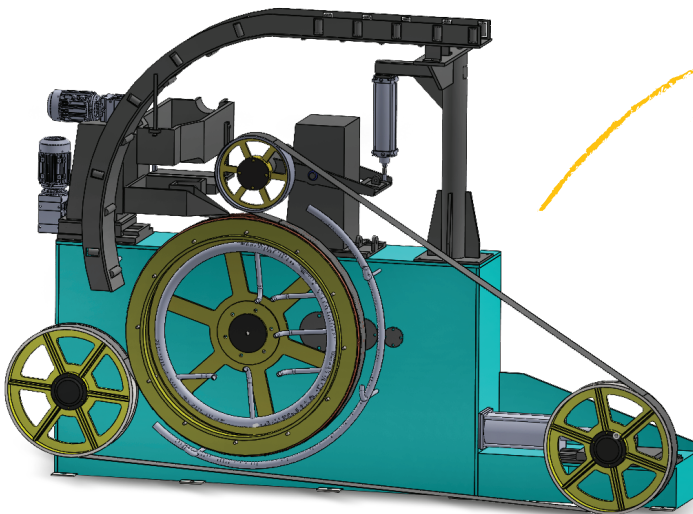
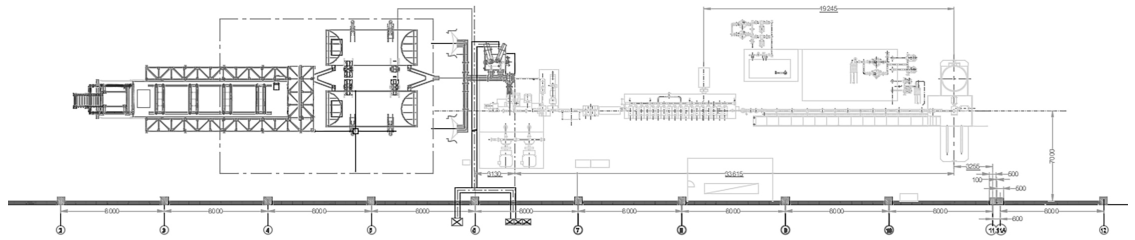
Engineer-to-Order (ETO) is a manufacturing process that is based on design creation at the time of order. An ETO process uses customer requirements, often expressed as functional capabilities, and defines, engineers and validates a new design that will satisfy those requirements, from scratch, at the time of the order or often bid.




We are being challenged to deliver more product variety while keeping costs from escalating. Our Engineer to Order Process Automation solutions for the Industrial Machinery industry provides a powerful rule authoring environment and repository that allows domain experts to capture the rules and best practices used to engineer and bid engineer to order (ETO) products which helps reduce the manufacturing cost of configured products.



- ▶ Melting Furnace
- ▶ Holding Furnace
- ▶ Casting Machine
- ▶ Automatic Shearer
- ▶ Rolling Mill
- ▶ Coiler





2018 Yılına İlişkin Kurumlar Bilgi Belgesi
Elektrik Enerji Sektörü

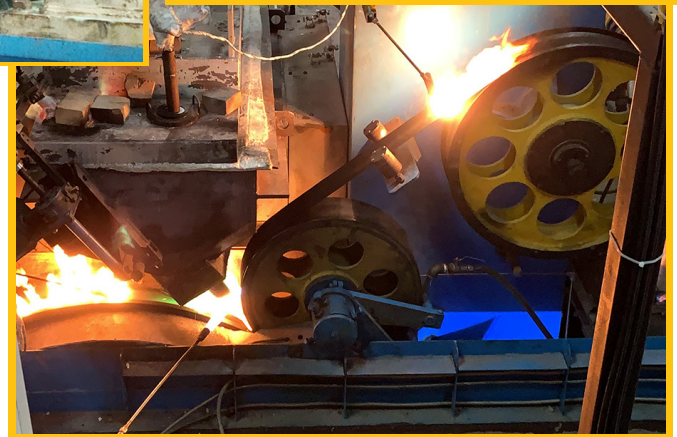
KATILIM BAĞLIKLARI

Taahhüt No	Tutarı	Başlangıç Tarihi	Bitiş Tarihi
Elektrik Enerjisi	100.000 TL	01.01.2018	30.09.2018
Elektrik Yayıncı Şirketi	Elektrik Enerji Sektörü Kurumları	Elektrik Enerji Sektörü Kurumları	Elektrik Enerji Sektörü Kurumları
Taahhüt No	Tutarı	Gesitirici Kurum	Alınan Kurum
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İkinci Kurum	2	Gesitirici Kurum	Gesitirici Kurum
Üçüncü Kurum	3	Gesitirici Kurum	Gesitirici Kurum
Dördüncü Kurum	4	Gesitirici Kurum	Gesitirici Kurum
Beşinci Kurum	5	Gesitirici Kurum	Gesitirici Kurum
Altıncı Kurum	6	Gesitirici Kurum	Gesitirici Kurum
Yedinci Kurum	7	Gesitirici Kurum	Gesitirici Kurum
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Yeni Kurum	100	Gesitirici Kurum	Gesitirici Kurum

BULGUSU BAĞLI KLİPİ

Bulgu Başlığı	İçerik
Bulgu Başlığı	Elektrik Enerji Sektörü Kurumları Kurum

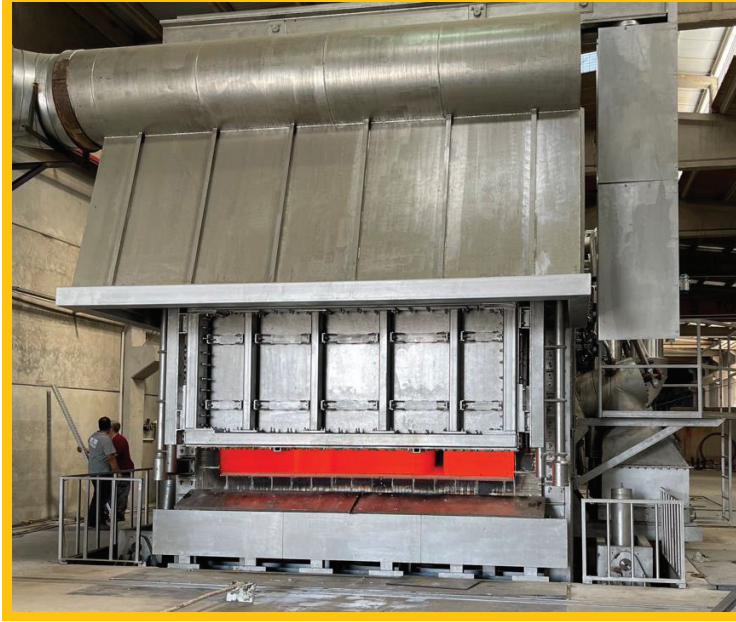
Casting quality is increased thanks to the cooling nozzle system improved by us.



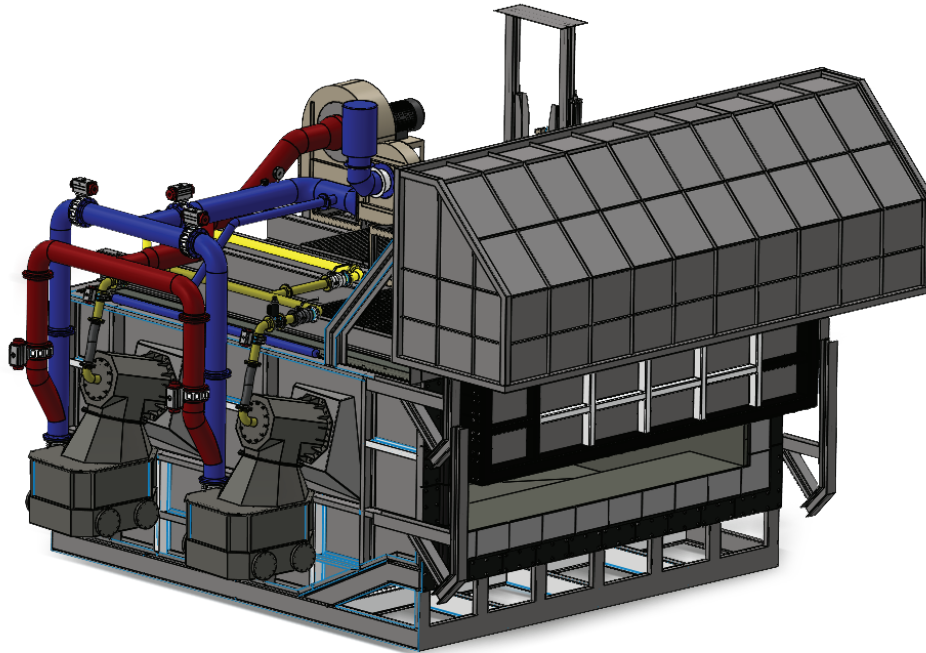
CASTING PROCESS

MELTING FURNACE

Melting furnaces are employed to overheat solid materials until they become liquefied.



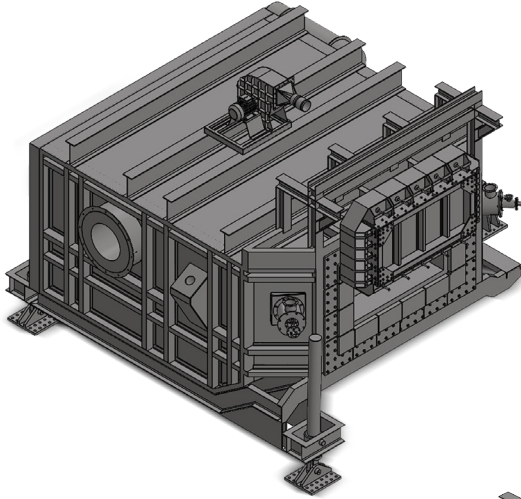
WE WORK HARD TO REDUCE YOUR OPERATING COSTS



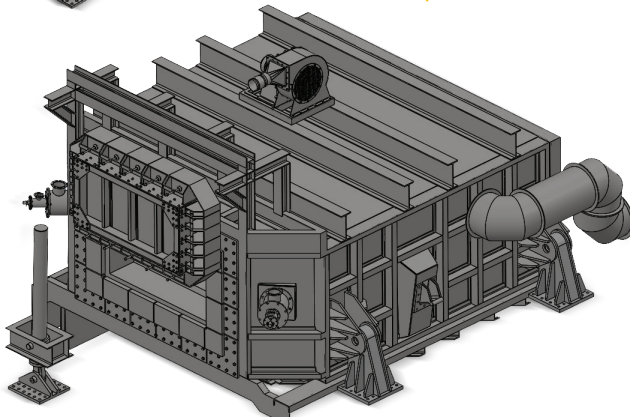
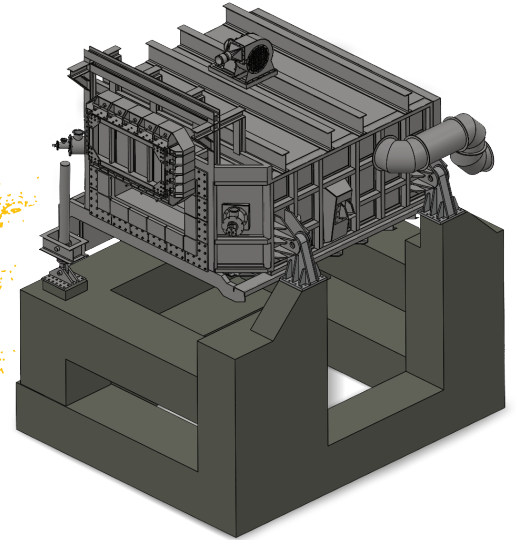
CASTING PROCESS

HOLDING FURNACE

Holding furnaces are employed for holding molten metal produced in a larger melting furnace at a desired temperature for casting.



As we follow ETO closely in
all our designs, machines that we
produce are not limited into this catalog.
For further information, get in touch with us at
sales@facs.com.tr
Let us find a solution to your design inquiries
and help you to produce the best product
at the end.



STRANDING PROCESS

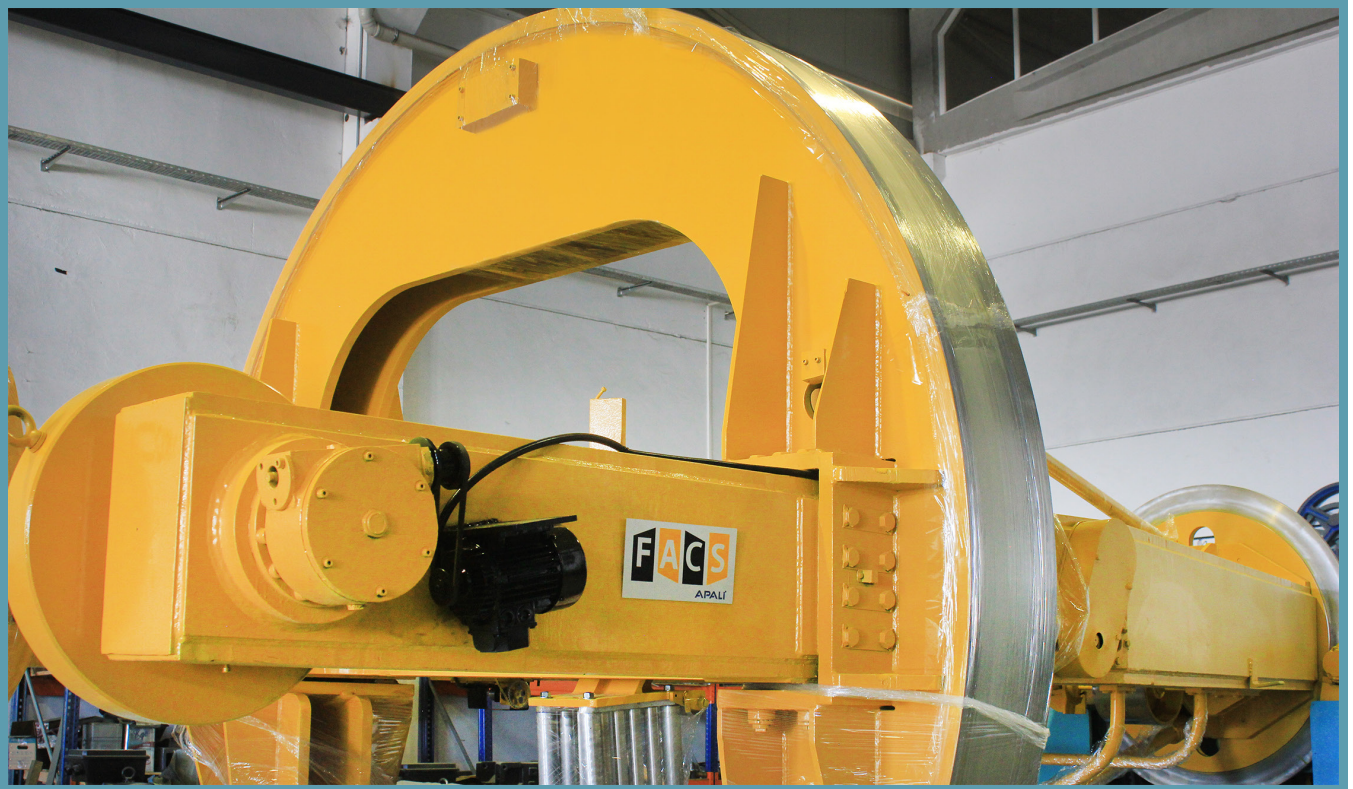
- Single Twist Stranding Line
- Double Twist Stranding Line
- Rigid Stranding Line
- Tubular Stranding Line
- Bow Stranding Line
- Planetary Stranding Line
- Drum Twister
- Taping / Armouring Line



"That's the production speed of our latest Rigid Stranding Line commissioned in Turkey."



Our project leader engineers check everything carefully during the start-up processes, for keeping operator's safety and your production's productivity.



STRANDING PROCESS

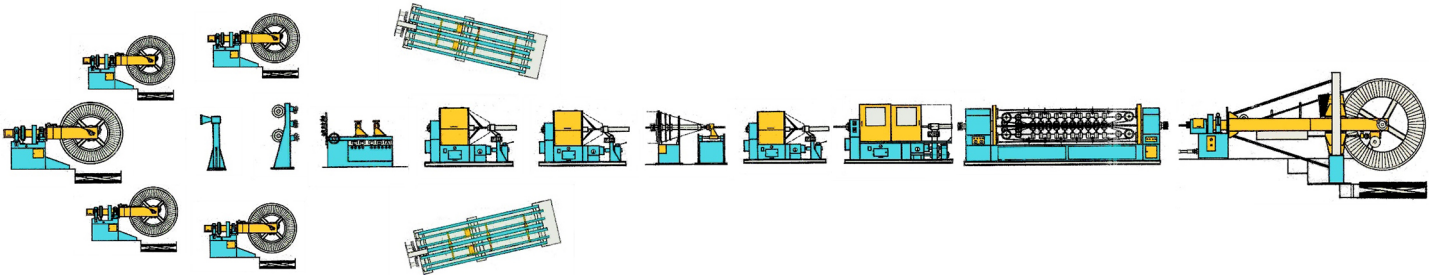


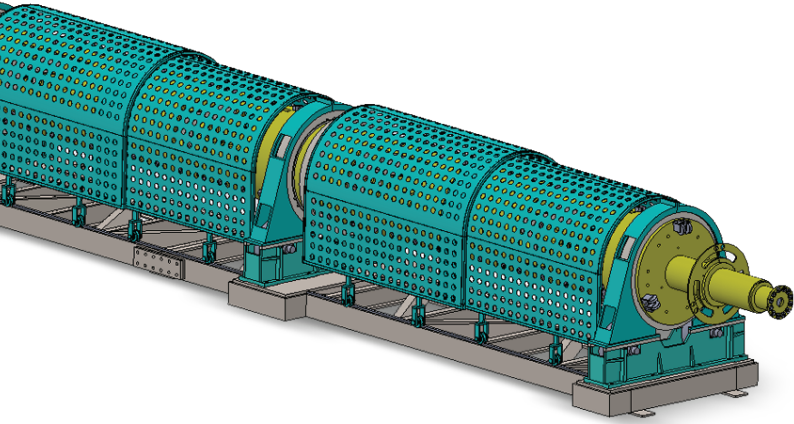
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and help you to produce the best product
at the end.





Our main goal in the design of stranding machines is maintaining a non-stop and high-quality production.



EXTRUSION PROCESS

► Insulation Process

► Sheathing Process

► Filling and Sheathing Process

► Auxiliary Equipment

- Pay-Off
- Accumulator
- Extruder Head
- Dies / Nips
- Cooling Channel
- Capstan
- Caterpillar
- Take-Up

Cable extrusion also known as cable insulation or sheathing is an essential part of the **cable manufacturing** process, protecting the cable from mechanical damage and environmental hazards.



We provide configurations for many types of extrusion lines according to your requested cable types and production capacities.





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closely in all our designs;
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EXTRUSION PROCESS



In insulation process, the insulating material is added by a process of extrusion at high temperature over the conductor to prevent current leakages. Several insulating materials may be used: PVC, PE, XLPE, HFFR, etc.

Different insulation materials may be used depending on the characteristics of the cable required. The quality of an insulation material depends on two basic characteristics: its insulation capacity and its heat resistance.



Cables usually have an outer polymer covering for protection. This is called the "outer-sheath". This sheath protects the conductors and their insulation from external elements which may change their electrical properties; such as moisture. It also protects them from mechanical aggression, which may occur during the installation of the cable.



The outer-sheath is applied like the insulation via a process of extrusion at high temperature. The sheath may be made from different materials depending on the required protection level, the final flexibility of the cable, the work environment, etc. As example: PVC, HFFR, PE, LDPE, etc.



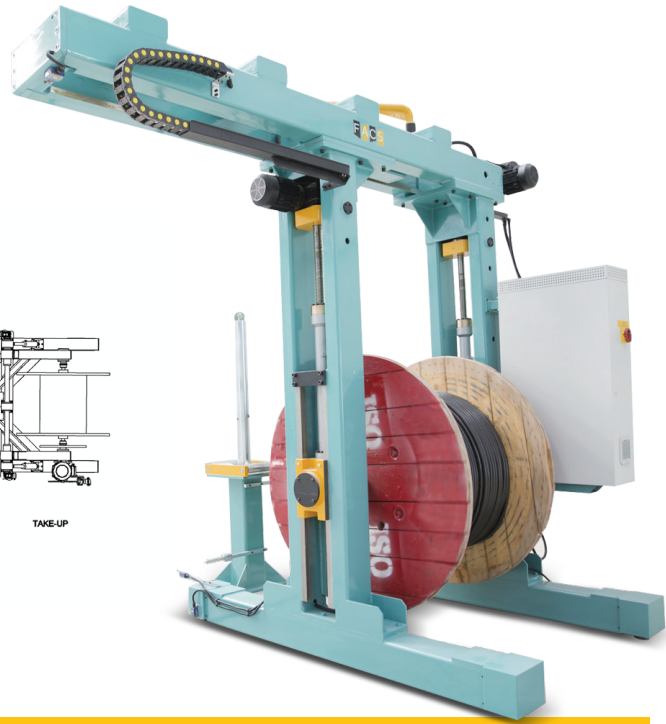
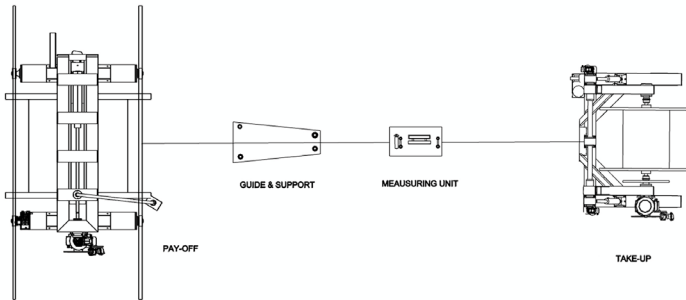
COILING AND REWINDING PROCESS

COILING AND REWINDING PROCESS

► Fully Automatic Coiling Line

► Semi Automatic Coiling Line

► Rewinding Line



Our lines are designed with "auxiliary equipment" suitable for the cable type and offered to your service at high speeds.



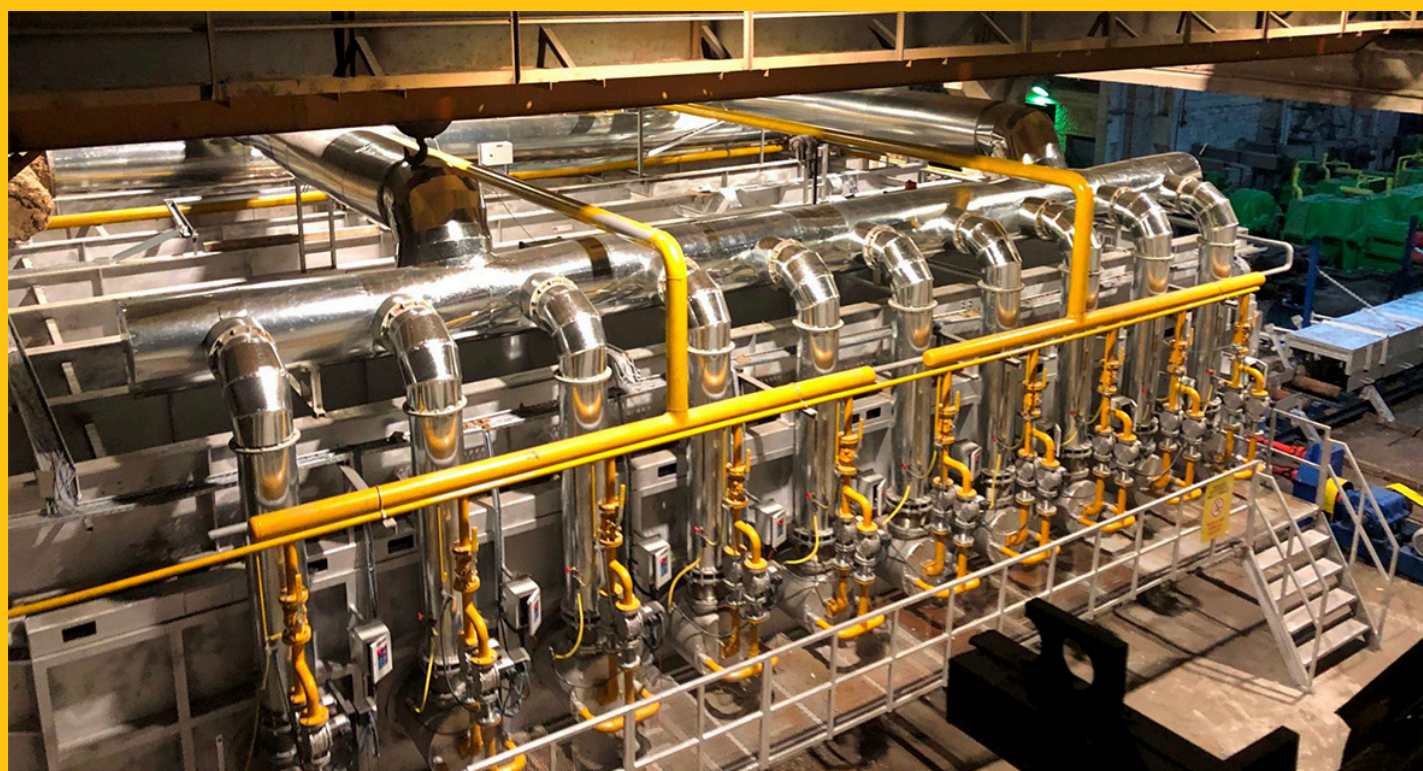


VARIOUS SYSTEMS AND MACHINERIES

WALKING HEARTH FURNACE

Walking Hearth Furnaces are mainly used for alloy steel with charge sizes of the higher cross-section. We design furnaces ensuring uniform heat distribution across the cross-section of the billet for maximum productivity.

Walking Hearth Furnaces ensure high production rates and excellent quality steel grades. They handle billets, heavy blooms, slabs, and beam blanks.

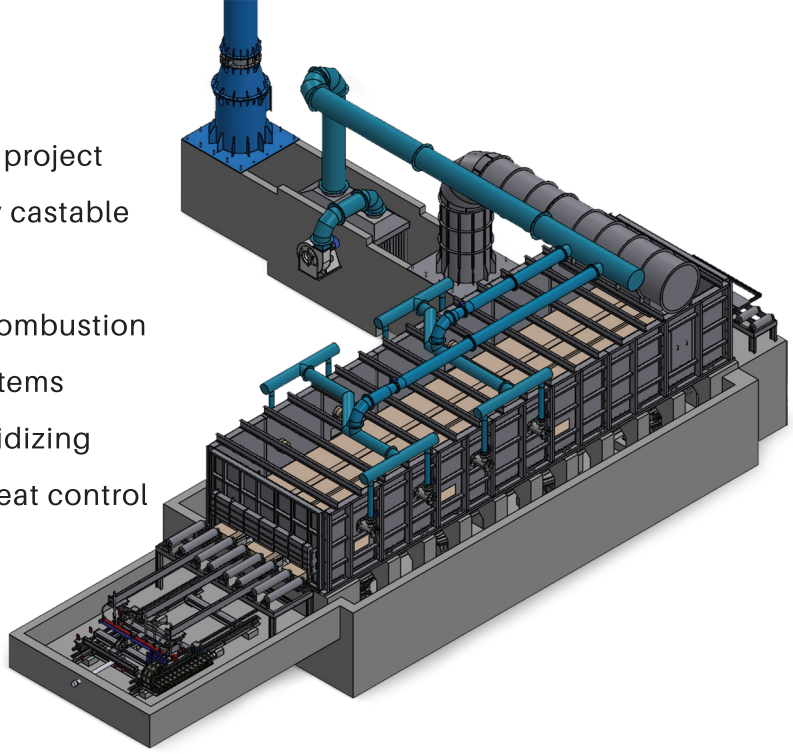


Walking hearth furnaces have several advantages over pusher furnaces. Output is not limited by the maximum length of the pushing action, and the items are not damaged on the hearth by pushing. The heating of items is accelerated, as there are usually gaps between items on a hearth and between the items and the walls. Therefore the items are heated from three or four sides. No additional equipment is required to release the furnace from the blanks, and the losses through the burning of the metal are reduced.

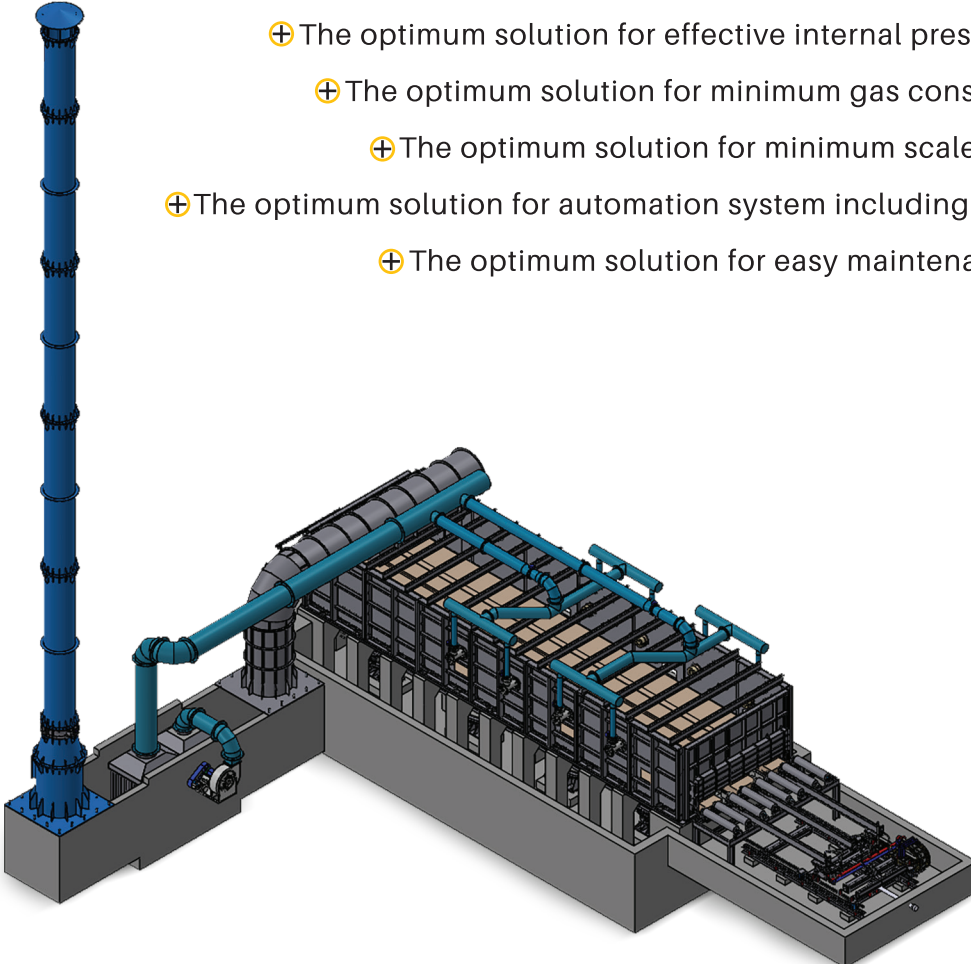
VARIOUS SYSTEMS AND MACHINERIES

WALKING HEARTH FURNACE

- ⊕ The tailor-made solution for each project
- ⊕ The optimum solution for refractory castable material design
- ⊕ The optimum solution for effective combustion with high level automation systems
- ⊕ The optimum solution for low oxidizing
- ⊕ The optimum solution for effective heat control on the billet



- ⊕ The optimum solution for effective internal pressure control
- ⊕ The optimum solution for minimum gas consumption
- ⊕ The optimum solution for minimum scale loss
- ⊕ The optimum solution for automation system including all safety measures
- ⊕ The optimum solution for easy maintenance



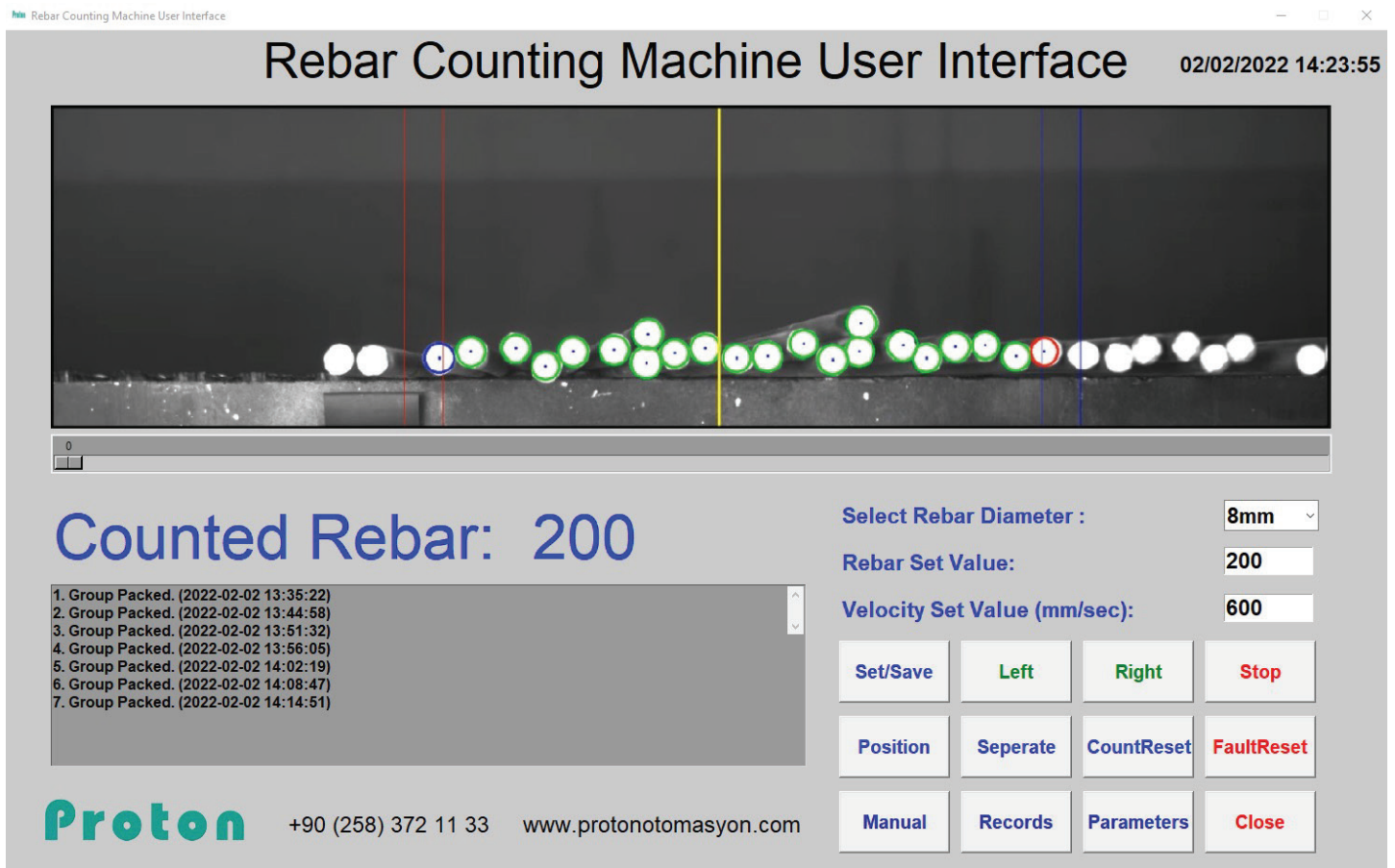
for further info
e-mail us at
sales@facs.com.tr

VARIOUS SYSTEMS AND MACHINERIES

STEEL REBAR COUNTING SYSTEM

In the steel bar counting system, image processing technology is used to detect, determine the position, and count of the round steel bars. When the number of steel bars reaches the predetermined quantity, the chain conveyor line is stopped and the corresponding steel bar is monitored in real-time by the image processing program.

The separation piston moves to the separation line after the line stops and the position of the relevant steel bar is determined, and after the separation process is completed as a result of lifting and lowering the pistons, the chain conveyor line starts working again. The system continues to work in a loop in this way until the user stops the system himself. All these processes are automatic.



VARIOUS SYSTEMS AND MACHINERIES

STEEL REBAR COUNTING SYSTEM

- ⊕ As a result of tests carried out under appropriate conditions; It has been determined that the count rate of round steel bars of different diameters has a high counting accuracy of 99.9%.
- ⊕ Chain conveyor can be operated smoothly at desired line speed up to 600 mm/sec line speed and changes in this line speed do not affect the accuracy of counting.
- ⊕ The chain conveyor can run back if desired, and this does not affect the count.
- ⊕ With the REDES method, round steel bars are arranged on the conveyor belt and made ready for counting and separating.
- ⊕ Counting errors due to separation are reduced to a minimum by making separation with the MULSER method.
- ⊕ Since the system is a non-contact measurement system, it has low maintenance costs.



VARIOUS SYSTEMS AND MACHINERIES

STEEL REBAR COUNTING SYSTEM

- ⊕ The devices used in the system are industrial devices and the camera communication has fiber optic transmission. The system exhibits stable performance without interference.
- ⊕ In order to ensure reliable and smooth operation of the system, there is technology that prevents misuse of the operator.
- ⊕ While the counting process is taking place, there is a counter where the operator can see the number of steel bars counted on the interface.



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VARIOUS SYSTEMS AND MACHINERIES

STEEL REBAR COUNTING SYSTEM

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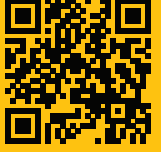


- ⊕ There are recording features where the last 5 packaging photos can be seen.
- ⊕ There are options where this whole process, which is carried out automatically, can be taken manually.
- ⊕ At the end of the sorting process, there is a field where the operator can see the number of packages grouped in the interface and the dates of the packages in minutes, hours, days, months and years.
- ⊕ This information is also kept in a database on the hard disk of the industrial computer.

USED MACHINERY

We are involved in second hand machinery for the Wire and Cable Industry to complete the whole customers' requirements. We sell the machines both the used condition and reconditioned, refurbished, modernized version.

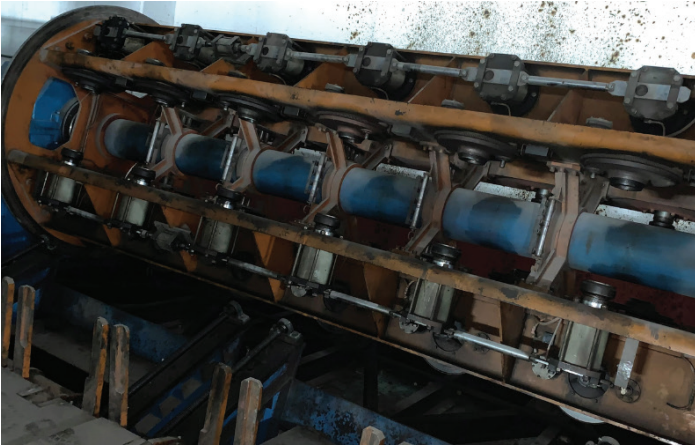
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We can support your turnkey cable manufacturing plant projects composing of new items as well as second hand refurbished elements in order to decrease the total price and/or reduce the delivery time and condition.

- Less investment costs,
- Better ROI (Return of Investment)
- Protect the World by ensuring efficient usage of resources

Before / After Photos of Some Applications





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In cable facilities; especially machines for casting and wire drawing processes, since they are long-standing machines and their wear and tear period is long, it is possible to re-use them as second hand machines by revising only the necessary sections. In this way, the total investment cost will be reduced and the customer's budget will be protected by renewing the machines in usable condition.



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W O R K F L O W



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... and will be everywhere



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