




**ALUMINIUM
FLAT ROLLED
PRODUCTS**





ASAŞ

Since its founding in 1990, Asaş has grown steadily to become one of Europe's leading manufacturing companies employing over 2000 highly skilled people across the group.

Our business is a future-focused company that favours long-term partnerships over the pursuit of short-term profit. As technology and customer expectations have evolved, we have always strived to be at the forefront of generating solutions and adding value to all sectors where we operate. Our R&D Center which is the first in Turkish Aluminium Industry is a proof of our relentless focus on exceeding our customer expectations.

We provide services for our clients through our Aluminium Extrusion Profile, Composite Panel, Aluminum Flat Rolled Product, PVC Profile, and Roller Shutter production plants located in Sakarya-Turkey on a closed floor space of 300.000 m², and total floor space of 640.000 m².

We combine our knowledge in production with design&product development and deliver our high quality products under ASAŞ brands to a wide range of markets. Our brands ASAŞPEN (PVC door and window systems), NATURALBOND (aluminum composite panel), ALUDES (aluminum flag and lighting poles), RESCARA (aluminum door, window and curtain wall systems), NATUROLL (roller shutter systems, garage doors and motor control systems) for construction markets are manufactured at our Sakarya plant.

We turn ideas into reality: ASAŞART, established with the idea that science, technology and art can unite, is a great contribution to the development of our society. Students, academicians and artists collaborate and being supported under the same roof of ASAŞART.



TECHNOLOGICAL, FLEXIBLE AND INNOVATIVE APPROACH TO YOUR EXPECTATIONS FROM ALUMINIUM FLAT-ROLLED PRODUCTS

ASAŞ, as one of the top 100 industrial firms in Turkey, foreseen the future of aluminium and decided to enlarge its product range with an investment on aluminium flat rolled products in 2010. In the first phase of the investment, worth of 300 million €, European aluminium community has welcomed their most current modern and technological flat rolled production facility within 300.000 m² total where 120.000 m² is closed.

Production lines;

- Continuous Casting
- Cold Rolling Mill
- Coil Annealing
- Slitting Lines
- Cut to Length Lines
- Foil Rolling Mill
- Foil Separating
- Foil Slitting
- Foil Annealing
- Continuous Coil Coating

Besides having very high technological production facilities, using an integrated IT infrastructure to manage these operations provides flexibility, reliability and traceability on production to ASAŞ. We offer those key features for a wide range of industries such as automotive, consumer goods, household appliances, packaging and construction.

We cultivate innovative solutions and products at our R&D Center for our customers on their unique projects.

Automotive and Transport

Key Features

- Good formability
- Good corrosion behavior
- Electrical and thermal conductivity
- Potential for weight saving
- Sag resistance
- High-quality surface finish
- Magnetically neutral
- Recyclability

Since decades; power, style and comfort have been the main focus for the automotive market. However today, fuel and emission efficiency became more important than ever before.

At this point aluminium offers tremendous opportunities with its light weight, high strength, excellent formability, perfect corrosion resistance and the last but not the least infinite recyclability.



Heat Shield

We offer ideal products for absorbing exhaust systems, fuel systems, engine components, heat and acoustics, custom slit unclad aluminium foils/sheets for mechanically joint or brazing applications in heat exchangers. Such as;

- HVAC
- Automotive air conditioning
- Engine/Oil cooling
- Sound and vibration absorbers

ASAŞ rolling mill consists of

- Entry/Exit side thickness measurement system
- Feed-forward thickness control system
- Back-up roll eccentricity control system

These systems satisfy dimensional expectations of automotive industry with a capability even better than international norms.



Brazing Foil

Slitting lines of ASAŞ are equipped with patented belt bridle unit and ultra-precision slitting tools which allows to produce:

- 25mm wide products, 50 cuts at once
- Products with CID of 150, 300, 400, 500mm
- Up to 2.000mm COD for a certain thickness range

with impurities free from surface and burr free edges.



Heat Exchangers



Bus Body and Truck Chassis



Bus Body



Car Plates



Fuel Tanks



Silos and Truck Chassis

Consumer Goods and Packaging

Key Features

- Non-toxic
- Ensures long shelf life
- Impermeable and odourless
- Durability
- Barrier for heat, oil, water and light
- Lamination, and printing ability
- Incombustibility
- Environment friendly

The physical properties of aluminium foil, such as the absolute barrier effect, provide protection and longer shelf-life for the product contents as well as better preservation of their nutritional and health benefits. The result is less food waste or greater resource efficiency.

Key Applications

- Household foil
- Pharmaceutical packaging
- Closures
- Tobacco foil
- Rigid/Semi-rigid, flexible food and liquid packaging
- Lid foils



Flexible packaging foil needs to be superior in terms of flatness. Any unconformity on flatness would induce valuable losses in yield, quality and speed in converting process. With this regard, ASAŞ introduced flatness measuring roll, work roll bending system and hot edge spray system on its foil mill which give unique ability to roll 2.170mm wide foil with the best possible flatness.



The supply of kitchen foil to the supermarkets is a competitive business. To survive in such challenging sector our customers have to be one step ahead by higher inventory turnover, shorter lead times and flexibility. We are capable to provide services in these markets by our skilled team and our developed IT infrastructure.



Key Features

- Perfect flatness
- Insensitive to temperature fluctuations
- Good formability
- High surface quality
- Different surface options
- Free of edge burr
- Fire resistance
- Resistant to UV radiation

To give life to the architects' creative and innovative designs; aluminium offers unique solutions with its less weight, high strength, perfect formability and low maintenance cost. Thus, today over 25% of the aluminium consumption is used by the construction industry in the world.

High accuracy in coating thickness and defect free surfaces which are the fundamentals of customers' satisfaction for coated coils are achieved at our coating line by using three dry coating thickness gauge and surface inspection system.



Garage Doors and Shutter



Trapezoid



Industrial Roof Applications

Ability to coat 2.100mm wide coils with PVDF, FEVE, PE, FLEX-PE, HDP, PUR-PA, EPOXY, EPOXY-PE as well as WRINKLED-PE in a wide range of solid and special colors is a great excellence of ASAŞ. In addition to these features, hot and cold lamination as well as embossing capabilities enable us to meet all possible surface requirements in the market.



Suspended Ceiling



Window Spacers



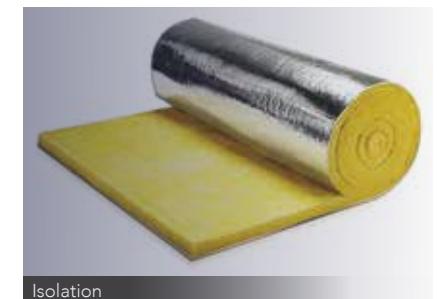
Facade Cladding Panel & Composite Panel

High accuracy in coating thickness and defect free surfaces are the fundamentals of customer satisfaction for coated coils. We are proud of supplying superior quality to meet our customers' quality demands. They are achieved in ASAŞ by using:

- Automated 3 roller coating systems
- Three dry coating thickness gauge
- Bright and dark field surface inspection.



Advertising Sign Board



Isolation

Industrial Products

Key Features

- Good formability
- Good corrosion behavior
- Electrical and thermal conductivity
- Non-magnetic
- Light weight
- Long life span
- Reflectivity
- Impact resistance
- Energy absorption capability
- Recyclability

ASAŞ, with its strong downstream focus on FRP, offers a wide spectrum of products including industrial applications. We offer customized solutions for industrial manufacturers to supply 1xxx, 3xxx, 5xxx, 7xxx, 8xxx series of alloyed aluminium sheets/coils/foils where aluminum corrosion resistance, formability, thermal conductivity and incombustibility are required.

Key Applications

- HVAC Units
- Industrial Cooling/Heating
- Air Filters
- White Goods
- Cable Insulation
- Solar Panels
- Flexible/Rigid Pipes
- Trafo Coils/Bus Bars
- Electrode in Batteries
- Satellite Dish

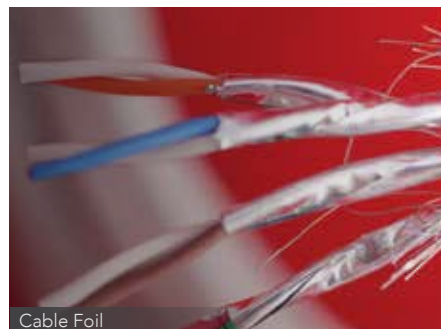


Industrial Heatexchangers

The reputable process know-how and capability of handling customer specific thermo-mechanical processes. This is how ASAŞ is able to produce deep drawable foils:

- from 1050, 8006, 8079 and 3003 alloys
- in H18, H19, H24 and H26 tempers
- for the thickness range of 90 to 300 microns

for various applications.



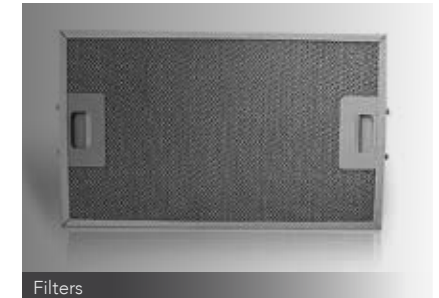
Cable Foil

High elongation for final product, good flatness for processing speeds and low thickness tolerance are required for cable foil materials. We offer;

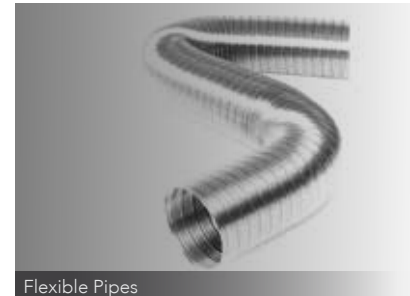
- process know-how to obtain desired elongations
- in combination of flatness measuring system, variable crown roll (VCR), high accuracy thickness control and backup roll eccentricity in the rolling mill ensure accurate flatness and minimal thickness deviation.



White Goods/Freezers



Filters



Flexible Pipes



Trafo Coils/Bus Bars



Solar Panels



Kitchen Trays





PRODUCTION FACILITY

Continuous Casting Lines
Cold Rolling Mill
Slitting & Cut to Length Lines
Coil & Sheet Product Specifications
Foil Rolling Mill
Foil Separating & Slitting Lines
Foil Product Specifications
Coil Coating Line
Coated Product Specifications
Quality
Research & Development

Continuous Casting Lines

Key Features

- 26 tons cast coils
- 2.250mm casting width
- X-Ray profile scanner
- Intensive care for liquid metal with electromagnetic stirrer
- Deep bed filter for molten metal quality





Besides having one of the widest continuous strip casters in Europe, ASAŞ cast house is equipped with the most advanced technologies in order to serve international market requirements. All casters are equipped with patented metal feeding system which provides a uniform flow and temperature control during casting to ensure crucial mechanical and physical properties of final products.

X-Ray profile scanner, patented roll cooling system and position/pressure hydraulic screwdown system provide better gap and cross profile stability during casting process. Thus, best cast coils in terms of flatness and thickness are supplied to the market.



Last but not least, ASAŞ has invested in all available auxiliary equipments for production lines such as electromagnetic stirrers, deep bed filters in series with ceramic foam filters, furnace charging and skimming machines in order to maximize the molten metal quality. This intensive care for molten metal will be fundamental for foil rolling mill to produce down to 0,005mm thin foils.

Cold Rolling Mill

Key Features

- Hard alloys rolling ability with 6-Hi CVC plus cold rolling mill
- ABB stressometer and hot edge spray for better flatness
- Reduced thickness deviation with feed-forward control
- Environmental friendly process with air purification system



ASAŞ cold rolling mill is the first 6-Hi aluminium rolling mill in Turkey and one of the only few invested in Europe during last 15 years. Continuous variable crown (CVC) and intermediate/work roll bending systems introduced to the 6-Hi mill makes it possible to roll hard alloys (5000, 6000 and 7000 series). The mill is also equipped with stressometer and hot-edge spray in order to serve best quality in terms of international flatness norms.

Reduced thickness deviation of flat products is fundamental of customer satisfaction. Both precise thickness measurement and feed-forward thickness control (entry/exit thickness measurement) systems in the rolling mill are great features



of the line which satisfy customer demands. We can even achieve lower than half of what European norms indicates.

ASAŞ eliminates losses of rolling oil at production by using patented Dry Strip and Airwash system and also exhaust air is washed & cleaned during this process.

By investing exhaust air purification system (AIRWASH) on cold rolling mill, ASAŞ proves its commitment to the environment and sustainability.

Slitting & Cut to Length Lines

Key Features

- From 25mm to 2.200mm width
- Thickness range of 0,2mm to 4,5mm
- Delicate surface quality
- Burr free edges
- High production speed
- Perfect cutting and slitting accuracy



Having state of the art slitting lines and cut-to-length line, we are able to produce coils from 25mm to 2.200mm in width and sheets from 500mm to 12.000mm in length for a thickness range of 0,2 to 4,5mm. With these core competencies, ASAŞ has the widest product range among the all flat aluminium producers in Turkey.

Not only the production range but also auxiliary equipments to shearing lines are carefully selected in order to obtain highest quality and efficiency.



Slitting lines, with patented belt bridle unit, are able to make 50 cuts at an operative speed of 600m/min with delicate surface. Burr free edges what market is looking for is obtained with ultra-precision slitting tools on the line.

By combining our great knowledge and the latest technology, we do always satisfy current market expectations.

Coil & Sheet Product Specifications



Coil & Sheet Product Specifications



Coil	Thickness	Width	Outer Diameter
	0,18-4,50mm	500-2.200mm	700-2.600mm
Strip	Thickness	Width	Outer Diameter
	0,18-4,5mm	25-500mm	900-2.600mm
Sheet	Thickness	Width	Length
	0,40-4,50mm	760-2.200mm	500-12.000mm

Coil-Strip-Sheet

Alloy: 1xxx/3xxx/5xxx/8xxxx

Temper: Soft /O/H11/H1X/H2X/H3X

Inner Diameter: 400/508/610mm

- Protective film (PET/PVC) can be laminated upon request.



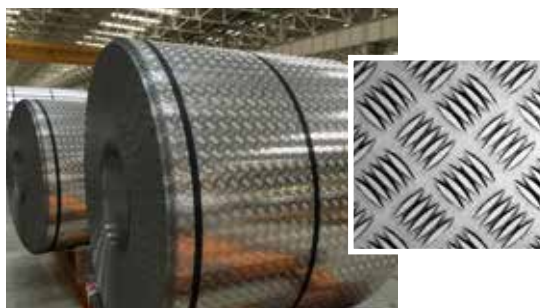
Coil	Thickness	Width	Outer Diameter
	0,2-1,25mm	500-1.750mm	900-2.000mm
Strip	Thickness	Width	Outer Diameter
	0,2-1,25mm	25-500mm	900-2.000mm
Sheet	Thickness	Width	Length
	0,40-1,25mm	760-1.750mm	500-12.000mm

Stucco Embossed

Alloy: 1xxx/3xxx/5xxx/8xxxx

Temper: Soft /O/H11/H1X/H2X/H3X

Inner Diameter: 400/ 508/ 610mm



Coil	Thickness	Width	Outer Diameter
	1,20-3,00mm	500-2.200mm	900-2.000mm
Strip	Thickness	Width	Outer Diameter
	1,20-3,00mm	200-500mm	900-2.000mm
Sheet	Thickness	Width	Length
	1,20-3,00mm	760-1.750mm	500-12.000mm

Tread Plate

Alloy: 1xxx/3xxx

Temper: F

Inner Diameter: 400/ 508/ 610mm

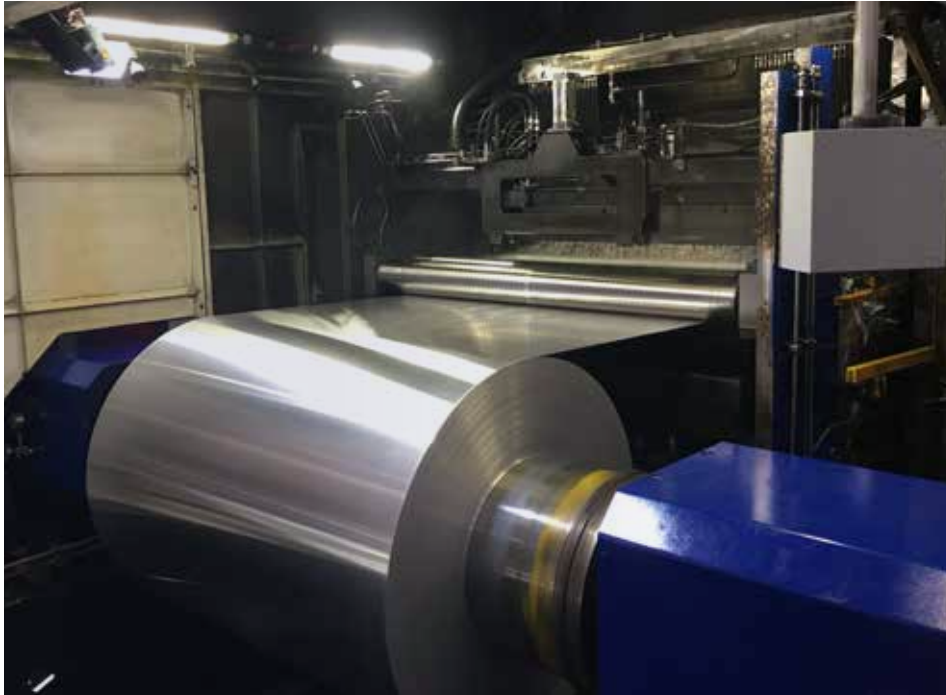
Patterns: 5 Bars

- Please contact with your sales representatives for further information.

Foil Rolling Mill

Key Features

- Widest and fastest foil mill in the world
- Superior flatness with variable crown roll and hot edge spray system
- Sustainable production with air purification system
- Ability to roll down to 6 micron



ASAŞ foil rolling mill is the widest and one of the fastest foil rolling mill in the world. Thanks to variable crown roll (VCR), flatness measuring roll, work roll bending system and hot edge spray system which gives us great opportunity a unique ability to roll widest foil ever produced.

High precision x-ray gauge measurement and back-up roll eccentricity control running in the mill allow to reduce thickness deviation to satisfy market demands (e.g; brazing and mechanical heat exchanger applications, custom slit unclad aluminium foils for mechanically joint or brazing applications).



Same as in cold rolling mill, we have also invested exhaust air purification system AIRPURE on our aluminium foil rolling mill in order to reduce carbon footprint at our plant.

With these technical abilities, process know-how and environmental sensitivity; ASAŞ turns ideas into solutions for wide range of market needs and creates value for customers.

Foil Separating & Slitting Lines

Key Features

- Widest foil separating and slitting in the world
- From 25mm to 2.150mm width
- Thickness range of 0.005mm to 0.3mm
- Online pinhole detection



With state of the art heavy gauge slitting line and separator, we are able to produce from 25mm up to 2.100mm wide and from 0,005 to 0,3mm thick coils.

We are capable to slit bright/matte foils up to outer diameter of 1.200mm and bright/bright ones up to outer diameter of 1.850mm. With these unique features, ASAŞ has the widest product range among the all aluminium foil producers.

In order to serve flexible packaging industry with highest quality in terms of barrier effect, our production lines are equipped with quality inspection systems such as roll mark detector and pinhole detector.



ASAŞ ensures high quality narrow strips and/or large coils at maximum productivity levels with perfect precision.

With these technical abilities, we supply aluminium foils to;

- Rigid/Semi-rigid flexible food and liquid packaging
- Lid foils
- Closures
- Tobacco foil products.

Foil Product Specifications





Alloy: AA 1xxx/3xxx/5xxx/7xxx/8xxx
 Temper: O/H12/H14/H18/H19/H22/H24/H26/H28
 Inner Diameter: 76/150/152/300/400mm

Thickness Range	Width	Outer Diameter
6-300microns	25-2.100mm	max. 1.200mm - B/M max. 1.850mm - B/B

- Dimensional tolerances according to EN 485-4. Narrower tolerances upon request.
- Thickness and width combinations to be determined by customer request.
- Plain surface, free from impurities.
- Surface quality according to EN 14121.



Coil Coating Line



Key Features

- One of the widest coating lines with 2.100 width
- Ability to coat 4 layers in a single pass
- Wide range surface solutions with cold lamination, embossing and electrostatic oiling systems
- Superior surface quality with inspection system
- Low carbon foot print with regenerative thermal oxidizer



ASAŞ, one of the biggest consumers of coated aluminium coils in its Aluminium Composite Panel Production Line in Europe, has carefully invested on one of the widest coil to coil color coating line.

Besides being able to coat 4 layer in a single pass, the line is equipped with hot and cold lamination system, embossing unit and electrostatic oiling unit in order to serve all possible surface solutions to the market.

High accuracy in coating thickness and defect free surfaces, as the fundamentals of customer' satisfaction for coated coils, are achieved by three dry coating thickness gauge and surface inspection system in the line.



The line includes two cleaning section. Pre-cleaning section prepares the necessary strip surface for the tension leveling process while the main cleaning section (consists of an alkaline cleaning and flash pickling section) treats the strip surface for specified coatings. Thus, we achieve best possible surface quality and coating adhesion.

The last but not the least, ASAŞ significantly lower carbon footprint and cost of coating operations by investing in regenerative thermal oxidizer (RTO) at the curing oven.

Coated Product Specifications





Alloy: 1xxx/3xxx/5xxx/8xxx

Temper: Soft 0/H4X

Inner Diameter: 400mm/508/610mm

Type of the dye: PE, HDPE, PU, PUR-PA, PE-PA, PVDF, FEVE-EP

- RAL, metallic/custom colours and different patterns can be applied upon request.
- Stucco embossed finish can be applied up to 1,25mm thickness.
- Protective film (PE) can be laminated upon request.
- PVC film lamination is also available.

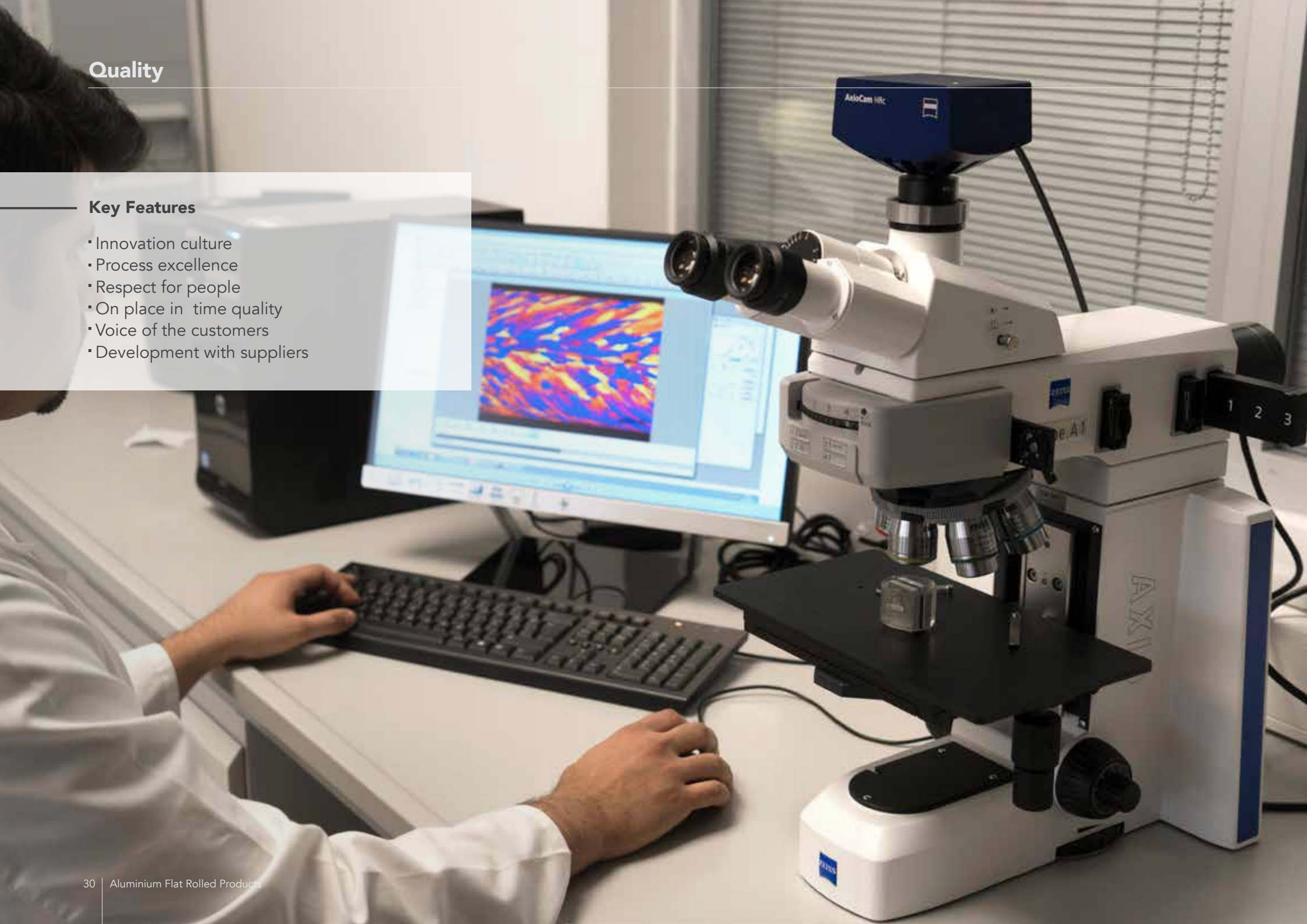
- *Please contact your sales representatives for further information.*

Coated Coil	Thickness	Width	Outer Diameter
	0,20-2,00mm	500-2.100mm	max. 2.600mm
Coated Strip	Thickness	Width	Outer Diameter
	0,20-2,00mm	25-500mm	max. 2.600mm
Coated Sheet	Thickness	Width	Length
	0,40-2,00mm	760-2.100mm	500-12.000mm

Quality

Key Features

- Innovation culture
- Process excellence
- Respect for people
- On place in time quality
- Voice of the customers
- Development with suppliers





CORE WORKING PRINCIPLES AND QUALITY

Supporting every one of our business lines is a robust set of six Core Working Principles. These are Quality Management, Technical Support, Customer Care, Health & Safety, Environmental Sensitivity and Positive Work Environment. These working principles are designed to benefit our clients, protect our employees and ensure the wellbeing of the communities we touch.

HEALTH & SAFETY

At ASAŞ, we are diligent in identifying, evaluating and eliminating every possible risk at all stages of our production process. We do this by planning precautions and their implementation, running practical training initiatives and maintaining the continuous development of our OHSAS best practices.



ENVIRONMENTAL SENSITIVITY

The aim of the ASAŞ Environmental Management System (A-EMS) is Zero Environmental Impact. To achieve this we take a number of practical steps that include the selection of alternative materials with less environmental impact, the maximum use of recycled materials, the minimal use of packaging, the removal of wastewater and the management of all hazardous emissions.



Research & Development

Key Features

- 75 highly skilled technicians and engineers working in ASAŞ R&D Department which is officially licensed by the government
- 1.800 square meter building equipped with laboratories and test center
- New product development
- New process development
- Solutions and know how provider to our customers
- Alloy development

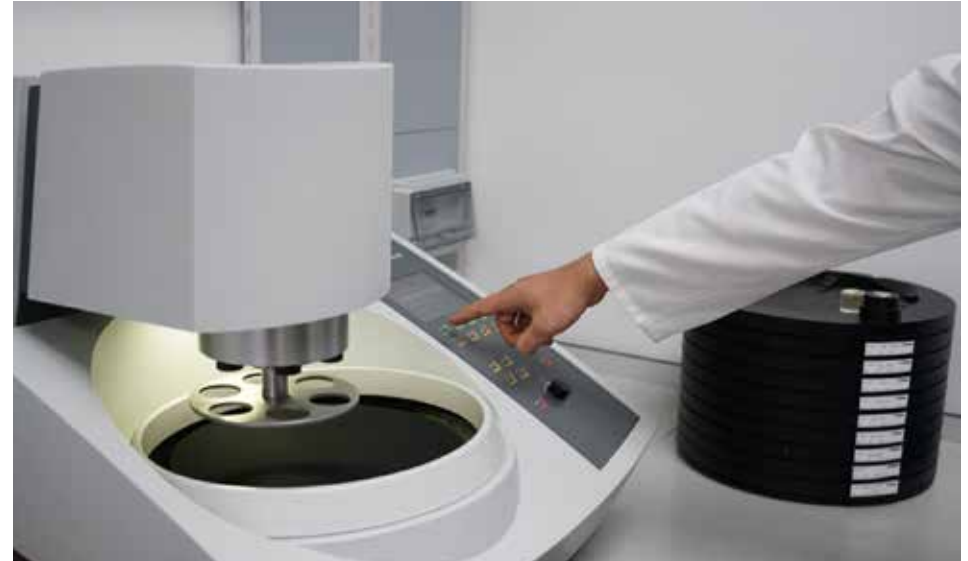


Our research and development department plays an integral role in the life cycle of our products. Our main focus is the development of existing & new products and processes, the creation of innovative solutions and the creation of short and long-term partnerships with our customers. We cultivate innovation with our first R&D Center about aluminium in Turkey.

Our organization performs a wide range of research and development work looking ahead for the future. ASAŞ R&D Team concentrates on long term future based development of the technologies for value creation and cost effectiveness. Also, by being close to our customers and their specific need we cooperate together with them as a partner to find solutions to their industrial needs where they can have great advantage on their business.

ASAŞ specialized technical R&D team work on:

- Alloy development having qualified physical and mechanical properties
- Development of thermo-mechanical processes for optimizing mechanical properties, anisotropy and corrosion behavior
- Optimization surface and process conditions for coating



- Microstructural analysis, analysis of mechanical properties and advanced material analysis etc
- Innovative solutions for our customers' projects together with foil, sheet and coated product customers
- New & existing products' development

TECHNICAL SUPPORT

Asaş has the most modern laboratories of Turkey and Europe established with an investments of more than a million dollar. There are 65 test and sample preparation equipments in the flat products laboratories which have a total area of about 600m². With engineers graduated from the best universities in Turkey and experienced staff working in the industry more than 15 years, The team is leading the formation of a new know-how in aluminum sheet and foil production with the widest and fastest machines in the world.

By these means Asaş also follows the existing and possible needs of the customers and produces alternative solutions to them.



Aluminium Flat Rolled Products
www.asasaluroll.com.tr

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