

Tavan Avar Asia
Steel Industries

Honors &Certifications

- Holder of Integrated Management System (IMS) Certification (ISO 45001:2018, ISO 14001:2015, ISO 9001:2015)
- Recipient of a One-Star Commendation from the National Organizational Excellence Award
- Recipient of the One-Star Certificate for Quality Recognition from the Iran National Quality Award (INQA)
- Recipient of the Certificate of Commitment from the National Maintenance Excellence Award
- Holder of a Research and Development (R&D) License from the Ministry of Industry, Mine and Trade
- Recognized as an Exemplary Green Industry Unit by the Provincial Department of Environment
- Selected as the Provincial Exemplary Industrial Unit
- Recognized as the Exemplary Unit for Quality Standards
- Selected as the National Exemplary Unit by the Social Security Organization





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About Us

Tavanavar Asia Steel Industries Company was established on October 16, 2001, under the name Farrokhshahr Steel Industries Company, with private sector investment. It was founded to meet the needs of various domestic industries for tinplate coils and sheets, create sustainable employment, and advance domestic technical knowledge. The company began operations on August 22, 2008, and was renamed Tavanavar Asia Steel Industries Company on October 2, 2013.

With an annual production capacity of 150,000 tonnes of special tinplate, the company is the largest producer of this product in Iran and the region. It holds a significant share of the domestic market and supplies part of its production to export markets.

The company's machinery and production lines have been supplied and installed by leading international manufacturers in the industry, and its products are delivered in accordance with international standards. Drawing on the knowledge and experience of domestic and international specialists, establishing quality systems, and following a continuous improvement approach are among the main pillars of the company's operational strategy on its path to organizational excellence.

In line with sustainable development and strengthening its position in the country's steel industry, Tavanavar Asia Steel Industries Company joined the Mobarakeh Steel Group on May 1, 2023. Joining the group has not only enhanced the company's position in the country's steel value chain but also created a suitable foundation for the sustainable supply of raw materials, stronger organizational synergy, better product quality, and the growth of both domestic and export markets.

Features & Advantages of Tavan Avar Asia Steel Industries:

- State-of-the-art machinery synchronized with the latest global technologies.
- The largest producer of special-grade tinplate with a nominal capacity of 150,000 tons per year.
- Bridging the gap between raw materials and final products in the metal packaging sector.
- Optimizing foreign currency (FX) savings and supporting the national economy.
- Global export capability across the entire product range.
- Robust infrastructure for future expansion and diversification of the product portfolio.
- Holder of Standard 15997 (Iran's national standard for tinplate production).
- Adherence to leading international standards and an integrated Quality Control (QC) unit.
- Ensuring sustainable supply and on-time delivery to customers.





Applications of Tinplate

Approximately 70٪ of the world's tinplate production is utilized in the food packaging industry, particularly for manufacturing food cans. The unique properties of this product have driven significant advancements in the can-making indpen cans (EOEs), and facilitating the design of appealing and diverse cans in various shapes, colors, and patterns.

Technological advancements in the production of thin-gauge tinplate, combined with the rising price of aluminum and the superior recyclability of steel, have driven its adoption across various industries.

Furthermore, the excellent formability and high corrosion resistance of this material have expanded its applications into diverse sectors. Today, tinplate is widely used for packaging products in the chemical, cosmetic, and personal care industries, as well as for manufacturing decorative and luxury packaging and many other consumer goods.

Properties of Tinplate

- Strong, durable, shatterproof, and lightweight
- Excellent formability
- Resistant to corrosion and mechanical stress
- Excellent printability and lacquerability
- Compliance with food-grade standards
- Resistant to abrasion and relatively high temperatures
- Excellent weldability
- Fully recyclable (eco-friendly)
- The only packaging materials widely approved for food-contact applications under international standards in Iran

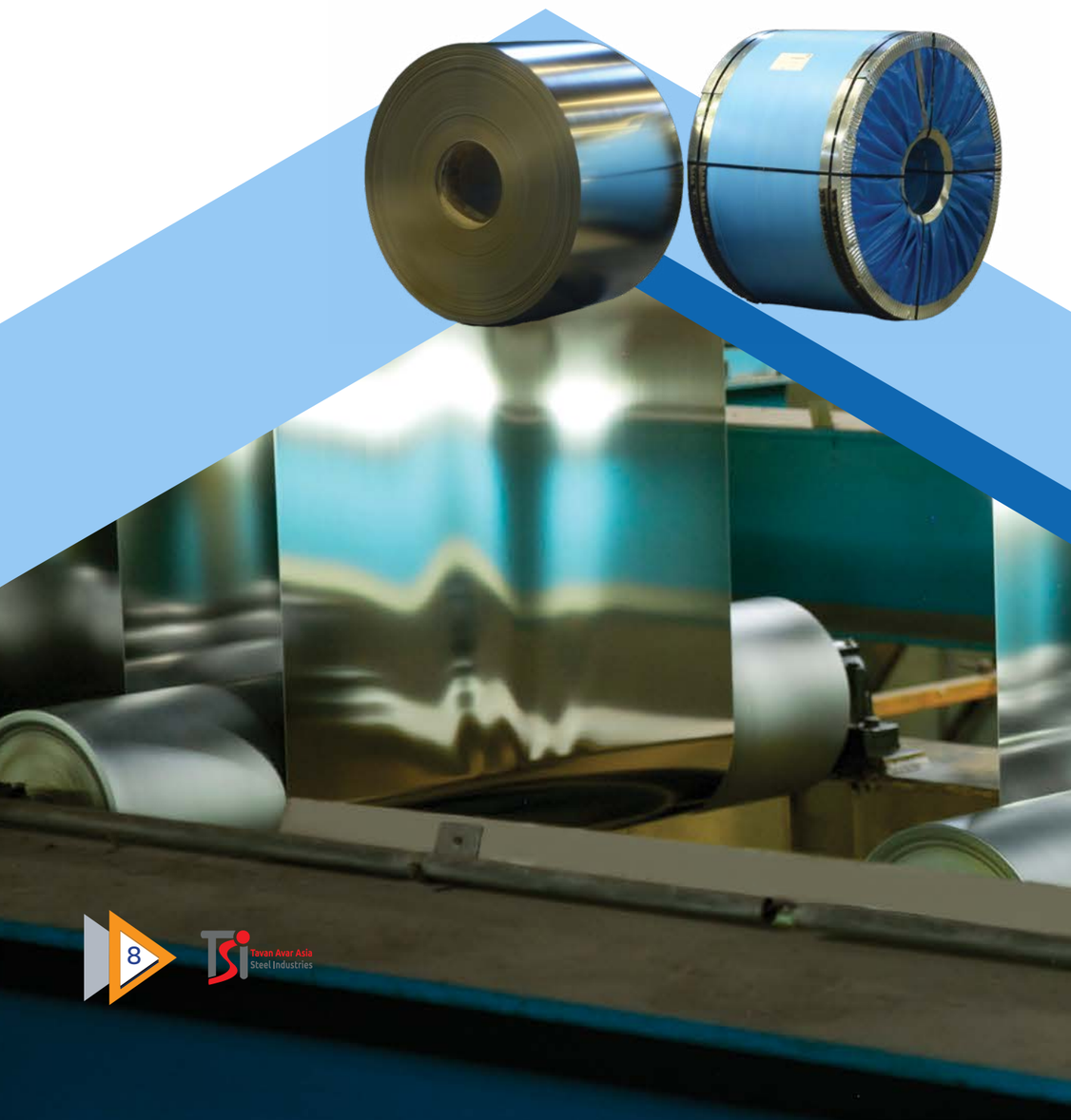


The Tinplate Production Process

At Tavan Avar Asia Steel Industries Co., the tinplate production process is conducted using the electrolytic method. In this method, a uniform layer of tin, with a thickness of less than 0.4 micrometers, is applied with high precision onto the surface of the base steel strip.

An induction furnace is used to enhance strip strength and improve coating quality. This process facilitates the re-melting (reflowing) of the tin, thereby increasing the layer's adhesion and creating a bright, lustrous surface on the final product.

Furthermore, the company's tinplate production line is equipped with a Tension Leveler. This machine effectively reduces potential waviness and bows in the sheet, ensuring a product with high surface quality and optimal flatness is delivered to the market.



Technical Specifications of the Tinplate Production Line

Parameter	Specification
Production Capacity	150,000 (tons per year)
Line Input and Output Speed	380 (meters per minute)
Process Line Speed	280 (meters per minute)
Sheet Width	550 to 1100 (millimeters)
Inner Coil Diameter (ID)	420 (millimeters)
Outer Coil Diameter (OD)	1760 (millimeters)
Thickness	0.15 to 0.5 (millimeters)
Maximum Coil Weight	20,000 (kilograms) / 20 (tons)
Tin Coating Amount	Minimum 1.1 and Maximum 5.6 (grams per square meter)

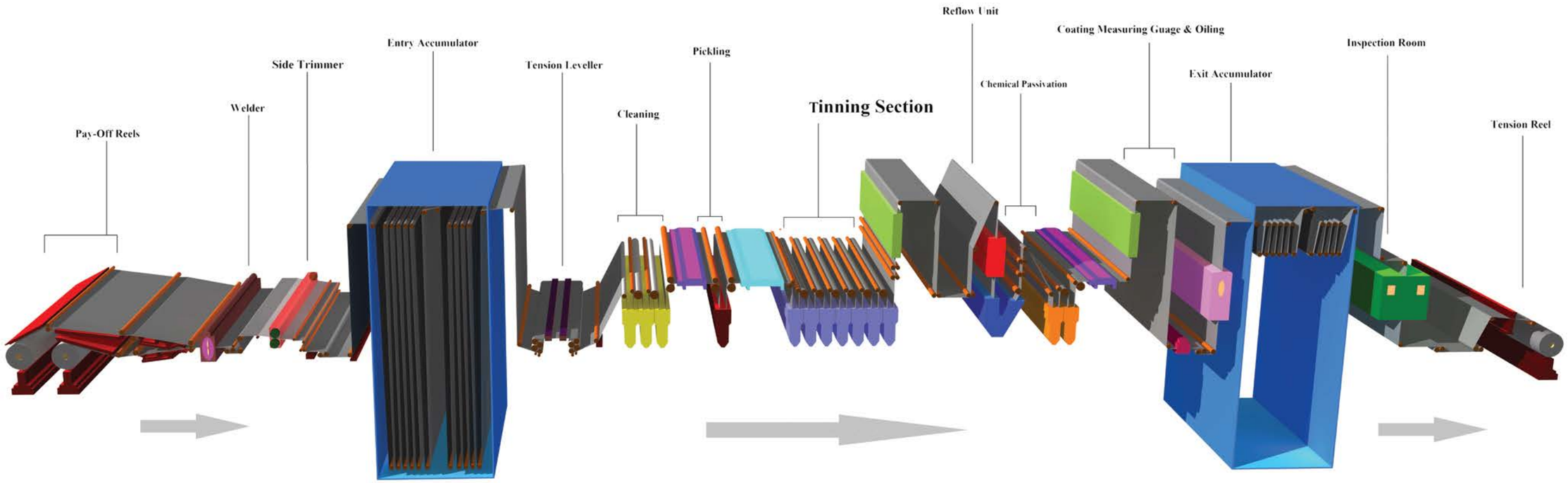
Specification of tin plated sheet

Designation of temper grade	Rockwell superficial hardness HR30T		
	Thickness (mm)		
	t ≤ 0.210	0.210 < t ≤ 0.280	0.280 < t
T-1	50 ± 4	49 ± 4	48 ± 4
T-2	54 ± 4	53 ± 4	52 ± 4
T-3	58 ± 4	57 ± 4	56 ± 4
T-4	62 ± 4	61 ± 4	60 ± 4
T-5	66 ± 4	65 ± 4	64 ± 4
DR-8	72 ± 4		
DR-9	75 ± 4		
DR-10	79± 3		

Features of the Tinplate Production Line

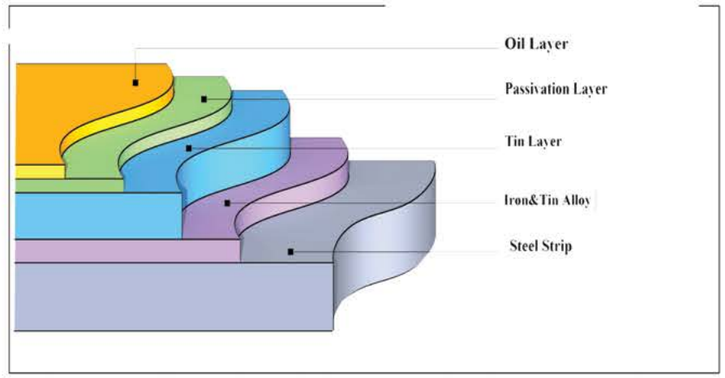
- Modern Reflow Furnace
- Advanced Tension Leveler
- Pinhole Detector
- High operating speed
- Advanced Quality Control (QC) Systems
- Uniformity of the Tin Coating

Tavan Avar Asia Steel Ind. Electro Tinning Line



Technical Specification

Production……..150,000 Ton/year	Coil OD……..1760 mm	Tin Coating Weight……..…….. (1.1-2.8-5.6) gr/m^2
Thickness……..0.15-0.5 mm	Line Speed In Process ……280 m/min	Passivation……..3.5-9 mgr/m^2
Strip Width (En)……..600-1100 mm	Max. Line Speed In Entry&Exit …….. 380 m/min	Oil Layer……..3-5 mgr/m^2
Strip Width (Ex)…….. 550-1050 mm	Max. Length Of The Entry&Exit Accumulator…450-480 m	Process Type…….. Electrolytic
Coil ID……..……..420 mm	Max. Weight Of The Coil……..20 Ton	Incoming Strip……..Steel Strip Type (MR, D, L)





Entry Section

In the Entry Section of the Tavan Avar Asia Steel Industries' tinplate line, a series of precise operations are performed to prepare the steel strip. These stages include coil loading, scrap shearing, strip welding, edge trimming, and leveling.

The leading end of coils often shows defects such as wrinkles, wavy edges, or surface holes, which are cut and corrected by the Shear. Subsequently, a resistance welding process is performed using the Welder. In this process, the weld wheel passes over the joint and ensures the strips are connected by applying simultaneous heat and pressure.

To prevent line stoppage during welding, a Looper (strip accumulation tower) is used, which is responsible for accumulating the strip. This system can accumulate 450480– meters of strip, thereby compensating for the delay caused by the welding process.

Following this stage, the strip enters the Tension Leveler. This machine plays a key role in correcting potential strip imperfections such as wavy edges, longitudinal and transverse bows, and center buckles. It establishes the necessary conditions for producing tinplate with excellent quality and a uniform, flat surface.

Process Section

At Tavan Avar Asia Steel Industries Co., tinplate production is carried out using state-of-the-art technology and strict quality control. This step-by-step process is meticulously designed to deliver a final product with the highest luster, strength, and surface uniformity to our customers.

Cleaning

Initially, the raw strip which typically contains grease, contaminants, and rolling detergent residues enters the cleaning section. In this stage, a degreasing operation is performed using chemical agents. The strip is then directed to the Cleaning rinse section to complete the washing process.

Pickling

To remove surface oxides and activate the strip's surface for enhanced tin adhesion, the strip enters the pickling section. Afterward, in the Pickling rinse stage, the surface is thoroughly cleaned and prepared for coating.

Tinning

This section of the production line consists of five stages:

Pre-Wetting: The strip is kept moist before entering the tinning cells to prevent the formation of surface oxides.

Tin Plating: Includes 7 cells (5 plating cells + 2 rinse cells). In the 5 main cells, the electrolysis process is carried out using tin anodes.

Washing and Rinsing: To remove residual electrolytic materials.

Induction Furnace (Reflow Unit): At temperatures between 280°C and 300°C, the tin reflows, diffusing into the strip to create a strong alloy layer.

Quench: Through the rapid cooling of the hot strip with water, the tin structure is stabilized, and the alloy layer becomes more resistant.

Chemical Treatment (Passivation)

In this stage, a chromium coating is applied to the tinplate surface. This increases resistance to oxidation and sulfation (sulfur staining) and also provides a suitable base for better lacquer adhesion and subsequent coatings.

Oiling

Finally, to prevent friction between the coil layers and eliminate the "Black Dust" phenomenon, oil is sprayed onto the strip surface using an electrostatic method.



Exit Section

After the oil spraying process, the sheet enters the loop tower, which serves to store the sheets to prevent line interruptions when a coil runs out and needs to be removed. When necessary, the sheet is cut using a shear at the output, and the tinplate coil is removed. A detector identifies the weld locations and any small holes present on the surface of the sheet, along with potential defects, which are recognized during the sheet inspection station. Necessary measures are then taken to prevent the acurrence of these defects .



The Tinplate Shearing Process

The sheet shearing operation is performed on dedicated shearing lines, based on precise planning and tailored to customer orders.

At the beginning of the process, the tinplate coil is placed on the Uncoiler. After passing through the leveler rolls and the accumulation looper, it enters the shearing stage. In this section, the sheets are precision-cut to the dimensions specified by the customer and are then transferred to the Stackers unit. To ensure product quality, defective sheets are segregated from the prime-quality sheets and placed in separate stackers.

Finally, the sheared sheets, after weighing and proper, secure packaging, are transferred to the warehouse. Subsequently, dispatch planning is carried out based on the customer's order and requirements.

Sheared Sheets and Quality Control

Tavan Avar Asia Steel Industries Co. operates three independent shearing lines with a total nominal capacity of 150,000 tons per year.

After the production of tinplate coils, upon customer request, these coils are prepared as precision-sheared sheets. To prevent damage, all sheets are prepared for transit to the customer using standard methods and durable packaging.

In line with protecting customer rights and ensuring product quality, the Quality Control (QC) department sends samples from every pallet of sheared sheets to the laboratory. This is done so that specialized tests including hardness and tensile strength measurement, surface roughness (Ra) analysis, and checks on tin, chromium, and oil coating weights are performed accurately.

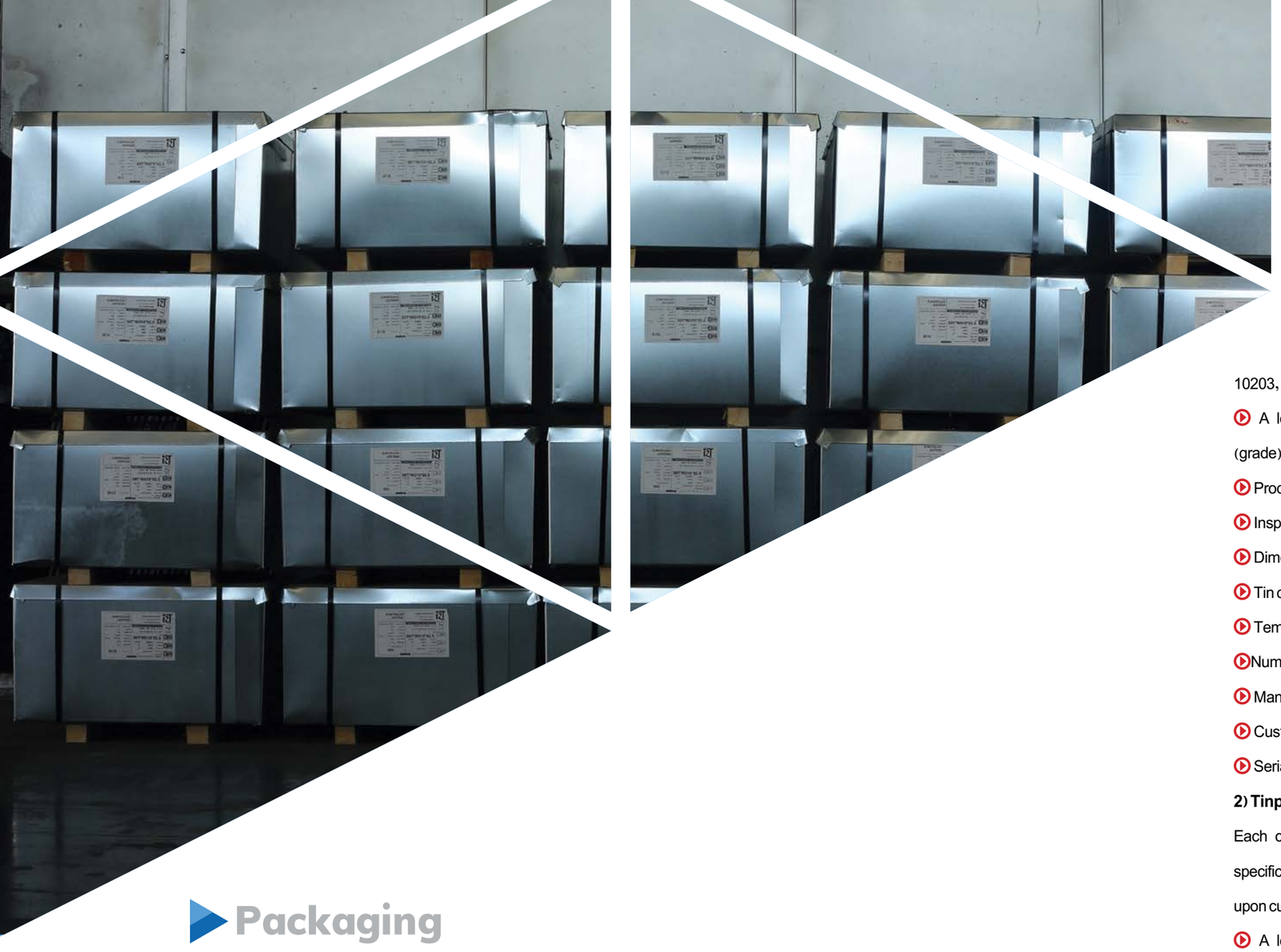
Furthermore, the dimensions and geometrical specifications of the sheets are thoroughly measured and inspected. If any discrepancy or non-compliance with required standards is detected, those sheets are removed from the production and dispatch cycle. Only sound, standard-compliant products are prepared for customers.



Technical Specifications of Shearing Lines

Number of Lines	3 cutting lines
Sheet Width	550 to 1050 (millimeters)
Inner Coil Diameter	420 (millimeters)
Outer Coil Diameter	1760 (millimeters)
Sheet Thickness	0.015 to 0.05 (millimeters)
Maximum Coil Weight	20 (tons)
Cutting Length	450 to 1250 (millimeters)
Cutting Precision	0.1 (millimeters)





Packaging

Tinplate products are packaged in two primary forms: Sheared Sheets and Coils. Each package (pallet) of sheared tinplate typically weighs between 1,000 and 2,000 kg and is identified with a label.

1) Sheared Tinplate Sheets

Sheet packaging consists of:

- Two longitudinal and two transverse straps (top and bottom).
- Moisture-absorbent wrapper and "Karton Plast" (corrugated plastic sheet).
- Metal edge protectors.
- A metal top cover (shroud) and a wooden pallet.

The identification label includes the following:

- Product code (based on standards such as EN 10203, JIS G3303 for sheet packaging).
- A letter indicating the steel group and type (grade).
- Production date.
- Inspection number.
- Dimensions (thickness, width, and length).
- Tin coating weight.
- Temper designation.
- Number of sheets and their weight.
- Manufacturer's name or identification mark.
- Customer's name.
- Serial number.

2) Tinplate Coils

Each coil must have a label with the following specifications (Note: Some items may be omitted upon customer agreement):

- A letter indicating the steel group and type (grade).
- Production date.
- Inspection number.
- Dimensions (thickness, width).
- Coating thickness (weight) specification.
- Temper designation.
- Weight.
- Manufacturer's name or identification mark.
- Customer's name.
- Serial number.
- Product code.



Printing Line

The company's printing line features a two-color press from a reputable European manufacturer, operating at a speed of 4,000 sheets per hour.

Specifications:

- Nominal Line Speed: 5,000 sheets per hour (SPH)
- Oven Length: 24 meters
- Printable Sheet Thickness (mm): Max: 0.3mm / Min: 0.12mm
- Maximum Print Dimensions: 1150 x 950 mm
- Minimum Print Dimensions: 750 x 528 mm

(Note: The ovens for the coating and printing line are gas-fired.)

The line utilizes a water and alcohol-based dampening system, typically operating with the **following solution mixture:**

- Alcohol: 10-16٪
- Water: 84-90٪







Coating (Lacquering) Line

The coating line at Tavan Avar Asia Steel Industries Co. is sourced from a reputable European manufacturer and operates at high capacity and speed. This line has a production capacity of 4,000 sheets per hour (nominal speed: 4,140 SPH) and is equipped with a 36-meter-long oven, which provides optimal conditions for curing and setting the lacquer on the sheet surface.

The lacquers and varnishes used on this line are divided into two main categories:

- Food-Grade Lacquers and Varnishes
- Industrial Lacquers and Varnishes

In this process, all sheets designated for the production of various cans and ends are coated with different types of food-grade and industrial lacquers,

depending on final product specifications and customer requirements. This operation can be applied to both sides of the sheet. Furthermore, the Pre-Coating (base coat) process and the Overprint Varnish (OPV) process can also be performed on this same line.

Overall, the output of this coating line serves as the primary feed source for the production lines of the can-making and packaging industries. The quality and uniformity of the applied coating guarantee the durability and aesthetic appeal of the final products.







Easy-Open End (EOE) Production Line

The Easy-Open End (EOE) production line at Tavan Avar Asia Steel Industries Co. utilizes technology from Minster (USA) and was designed and assembled by Corima.

This line has a production capacity of 500 ends per minute (EPM) with a standard diameter of 84mm, meeting the extensive needs of the packaging and food industries.

In the production process, a food-grade compound (mastic) is used to provide a more reliable and safer seal for food products.

Another advantage of this line is that the ends pass through an "Electrocoater" bath. This system is designed to prevent minor scratches and correct potential surface defects, thereby guaranteeing the final product quality.







Can-Making Line

At the Tavanavar Asia Steel Industries Company can-making facility, a variety of products are manufactured, including:

- 1.1 kg Cans (99mm diameter)
- 2.0.5 kg Cans (73mm diameter) in various heights
- 3.Tuna Cans (84mm diameter)
- 4.Can Ends (Tops and Bottoms) in 99mm and 70mm sizes

1 kg Line:

- Equipped with a New Dodo welding machine.
- Nominal capacity: 350 cans per minute.
- Production capability: 200 (800 g) cans per minute.

0.5 kg Line:

- Equipped with a Soudronic FBB425500/ welding machine, made in Switzerland.
- Line speed: 180 cans per minute.

Expansion Plan

To further develop the printing unit and the packaging industry, the company has procured the following new production lines:

- A two-stage drawn and redrawn (DRD) line for 83 mm tuna cans, with heights of 33, 37, and 43 mm, manufactured by ESTES.
- A sheet-press line for 99 mm ends.
- A sheet-press line for 70 mm ends.
- A sheet-press line for 83 mm shells.

3-Piece 0.5 kg Food Cans	
Diameter (mm)	Height (mm)
73	110
73	102
73	100
73	98
73	96
73	80

2-Piece Food Cans	
Diameter (mm)	Height (mm)
83	33
83	37
83	43

3-Piece 1 kg Cans (Food and Industrial)	
Diameter (mm)	Height (mm)
99	150
99	142
99	110
99	108
99	106
99	65

Tavan Avar Asia
Steel Industries



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