



# **Color Coating Line (CCL)**

## **Metal Strip Processing Solutions**

### **Colour Coating Line \_\_\_\_\_**

# COLOR COATING LINE [CCL]

- Eco-friendly
- Regular update
- Nano Coated Steel
- Waste optimization
- High production speed
- Advanced chemical coating
- Automatic programming
- Fully automatic packaging
- No operator required (autopilot)
- Sheet production in ultra-thin thicknesses
- The device works with artificial intelligence
- It has more than 600 different types of sensors
- A smart washing system with 80% saving in water consumption
- Equipped with paint, polyester, polyurethane and epoxy systems



## Innovation

### Fast payback

High flexibility  
Reduction in logistics, maintenance and manpower costs.  
Continuous control and optimization of operational parameters.

### +Technical data

Thickness Range: from 0,16 to 1,6 mm  
Width range: from 800 to 1600 mm  
Speed = 120 m/min  
Capacity: up to 150.000 tpy

### +Automation

Automation  
Fully automatic process control  
Fully automatic coil handling  
Easy improvement  
High availability  
Troubleshooting  
Production reports  
Largely intuitive video pages  
Automatic control of input data

### +Environment

Environment  
Environmentally friendly process  
(for treating baths and solvent cleaning with heat recovery)

Conventional chemical conversion process by tanks  
Advanced "dry-in-place" process by chemical roll coaters.  
Most modern concept of coaters (for heavy duty, vibration free mechanical design, interchangeable heads)  
Special Catenary or Flotation curing ovens

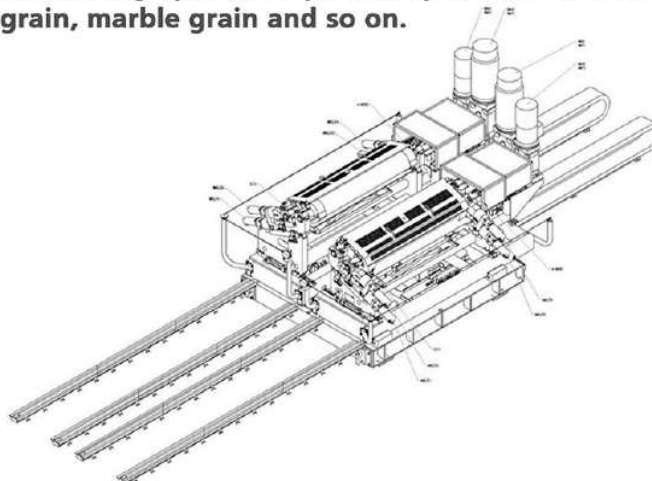
### Digital

Smart Level 2 system is able to provide models and technology for improving the setting all relevant process parameters.  
ML & AI projects  
Cybersecurity  
Catalog creator  
Robotics & 3D Printing

### Colour Coating Line

Integrating mechanical and process know-how, Hito offers high quality technology and environmentally friendly process for treating baths and solvent cleaning with heat recovery. Hito provides Color Coating and Laminating Lines for thin and heavy gauge strip, narrow and wide strip, aluminium strip, carbon

1. Line Type: one coating and one baking, two coating and two baking, three coating and three baking.
2. Coating Type: epoxy resin, polyurethane, polyester, polypropylene, polyvinyl fluoride, silicon modified polyester
3. Chemical Coater: dual-head two-roll type (used in prime coating), three-roll type (used in finish coating front side), two-roll type (used in finish coating back side).
4. Catalytic Incineration System: RCO, RTO, DTO
5. We also provide Pattern Printing System to produce pattern color coated steel, like the wood grain, brick grain, stone grain, marble grain and so on.



## Continuous Color Coating Line

Our experts have mastered the paint coating systems such as RMP, SMP, PVDF, HDPE, Polyester, Plastisol, Polyamides, and PUPA. We manufacture steel coils that have an elegant appearance, good corrosion resistance, and can be processed directly. Steel LLC caters to multiple industries and products applications such as PEB, Roofing & Claddings, False Ceilings, Fanade Awnings, Interior Ceilings, Rolling Shutter, Cold Storage Rooms, air conditioning appliances bodies, etc.

Our annual capacity is 150,000 MT/Annum of Pre-Coated Steel/Aluminum Coils. Our experts have mastered the paint coating systems such as RMP, SMP, PVDF, HDPE, Polyester, Plastisol, Polyamides, and PUPA. We manufacture steel coils that have an elegant appearance, good corrosion resistance, and can be processed directly. Arabian Iron and Steel LLC caters to multiple industries and products applications such as PEB, Roofing & Claddings, False Ceilings, Fanade Awnings, Interior Ceilings, Rolling Shutter, Cold Storage Rooms, air conditioning appliances bodies, etc

## FINISHED PRODUCT STANDARD TEST RESULTS

TEST TYPE	RMP	HDP	PVDF(PVF)	TEST STANDARDS
Colour Matching	Delta E <=1	Delta E <=1	Delta E <=1	ASTM D2244
Gloss at 60 C	10-90%	12-90%	25-35%	ASTM G523
T Bend Without Crack	2T	2T	2T	ASTM D4145
Impact	60 inch - LBS(8J)	60 inch - LBS(8J)	60 inch - LBS(8J)	ASTM D3359
Pencil Hardness	H	H	HB	ASTM D3363
MEK Resistance (No of Rubs)	100 DR	100 DR	100 DR	ASTM D4752
Cupping	6mm	6mm	6mm	ASTM D643
UV Resistance Delta E Hunter	Delta E <5 (1000Hrs)	Delta E <2 (1000Hrs)	Delta E <3 (2000Hrs)	ASTM G154
UV Resistance Gloss Retension	G.R.>25% (1000 Hrs)	G.R.>50% (1000 Hrs)	G.R.>90% (2000 Hrs)	ASTM G154
Humidity Resistance	1000 Hrs - M	1000 Hrs - M	1000 Hrs - M	ASTM D2247
Corrosion Resistance Salt Spray	750 Hrs-M	750 Hrs-M	1000 Hrs-M	ASTM B117

**No blistering, Peeling, Cracking. loss of gloss or softening of the finish up to 2000hrs of exposure to 100% Humidity at 5-/±100°F.**

**QUV-AUV cycle-4hrs at 75°C Condensation-4 hrs at 50°C Colour change is not more than 5 NBS unit as per ASTM D 89-2244 no chalking greater than #2 rating as per AS11-481-1580, Gloss retention is not greater than # 3 rating as per AS5-481-1580**

**No blistering and adhesion loss after 1000 UV hrs exposure. Note: performance is based on**

## Color Coil Coating

Coil coating is a continuous and highly automated process for coating metal before fabrication. In one continuous process both the top and bottom sides are cleaned, chemically treated, primed, oven cured, top coated, oven cured again, rewound and packaged.

Coil coating provides beautiful topcoats, durable surfaces, innovative applications, green benefits, and cost savings as compared to other substrates and other coating options. Coating systems supplied as per the specification consist of a Primer coat covered by various types and thicknesses of top coats. The combination of primer and top coat is classed as either a two-coat thin- film system or as a multi-coat (two or more) thick-film system.

Coil coatings comprise liquid paint in a wide range of colours and finishes that can be applied to continuous steel or aluminium strip. These can be cured in seconds and recoiled for delivery to end users. The coil coating process not only creates new markets for sheet metal products, but also reduces the environmental impact by minimizing paint waste and making use of excess solvents. Evaporating solvents are incinerated to generate heat for curing ovens, thus preventing waste and pollution.

## Color Coating Specification

### Process Capability(Line Specification)

DESCRIPTION	PPGI	PPAZ	PPAL
Type	CONTINUOUS COLOR COATING		
Line Speed	60 mpm	60 mpm	60 mpm
Thickness (MM)	0.20 TO 1.50 MM	0.20 TO 1.50 MM	0.20 TO 2.00 MM
Width (MM)	650 TO 1350 MM	650 TO 1350 MM	650 TO 1350 MM
Output Coil ID (MM)	508MM	508MM	508MM
Output Coil OD (MM)	Up to 1500MM	Up to 1500MM	Up to 1500MM
Output Coil Weight (MT)	2.00 to 5.00 MT	2.00 to 5.00 MT	1.00 to 3.00 MT
Type Of Painting	EPOXY RMP (REGULAR MODIFIED POLYESTER), SMP (SILICON MODIFIED POLYESTER) HDPE (HIGH DURABLE POLYESTER), PVDF (POLY VINYLIDENE FLUORIDE), PLASTISOL, PUPA/ARS, ANTI-BACTERIAL, WRINKLE FINISH ANTI SKIDDING, SELF-CLEANING/ANTI DUST		
Surface Finish	Smooth, Matt, Gloss, Textured		
Types Of Material	HOT DIPPED- GALVANIZED STEEL (ZINC: 60GSM to 275 GSM)	HOT DIPPED ALU ZINC (Alu Zinc: AZ30 to AZ150)	ALLOY (1100, 1060, 3003, 3104, 3004, 3105, 3005, 5052, 5005, 5182, 5754 etc.)
Grade/Temper	LFQ,55, 5GCC,CS,DX,HX	LFQ,55,5GCC,CS,DX,HX	H0, H12, H14, H18, H22, H24, H26, H28, H32, H44, H46 etc.
Paint Coating	Standard 5+20 with customized coating facility up to 200 micron		

## Advanced Color Coating Line Next Gen Coating Line

### PAINT Systems

#### 1 Primers

#### 1-1-Polyester

#### 1-2-Polyurethane

#### 1-3-Epoxy

#### 1-4-PVC (Polyvinyl chloride)

#### A-Polyester

##### A-1-R.M.P (REGULAR MODIFIED POLYESTER)

Regular Modified Polyester is most widely-used coating with durable Polyester paint and heat dried. It is applied to interior/exterior materials with no heavy drawings. RMP coated products are used for exterior panels and interior design purposes that do not require excessive processing. It generally displays superior workability, durability and weather resistance and used for a variety of purposes; offered in a wide array of colors and degrees of polish. Matt and wrinkle effect can be added to the top finish.

##### END USAGE:

Roofing & siding panels Interior Partition Building Interior/Exterior Sandwich panels Roof, Gutter Steel furniture Shutter, Door, Garage Door, Iron Frame, etc.

##### A-2-S.M.P (SILICON MODIFIED POLYESTER)

Silicon Modified Polyester is a silicon resin modified Polyester paint coated and heat dried. Due to its higher durability than the Regular Polyester, generally applied for building construction. SMP assures economic benefits under circumstances of sea-side or industrial zones.

##### END USAGE:

Public Construction Material, Sandwich Panel, Corrugated Roof in Industrial Complexes, Airport, etc.

##### A-3-H.D.P (HIGH DURABLE POLYESTER)

High Durable Polyester is high weather-proof resin is developed with Hydrogenated monomer & Neo structure monomer. Assures similar durability as PVDF, but with more competitive price and advantages of various colors & gloss. Can be coated into a various pattern, inspired by customers' needs.

##### END USAGE:

Metal Exterior, Plant, Roof, Gutter, Roof, Industrial Building, etc.

##### A-4-P.V.D.F (POLY VINYLIDENE FLUORIDE)

Poly Vinylidene Fluoride coating assures high weatherproof against climate and durability, wear resistance & machinability. With PVDF unique painting technique, can be made into a simple mono color type (Solid/Metal/Mica) as well as in various pattern types. PVDF (fluorine-carbon) coating made of fluorine carbon resin, pigment, ester solvent, after high temperature roasting and baking, the paint is solidified to dry film with super weather resistance. The hydrophilic surface treatment will prevent dusts adhesion on the surface and enable dust to be removed easily. PVDF coatings are especially resistant to solvents, acids and heat and has low density compared to similar fluoropolymers. 20 years of limited warranty provided depending on the regions.

corrosion resistance. Plastisol coating up to 200 Microns with smooth or Leather finish on Aluminum or GI Steel has been used to cater the needs of cold storage and food processing markets.

## Advanced Color Coating Line Next Gen Coating Line

### END USAGE:

Roofing or building industry (Cladding, Rolling Shutter, Facades, Interior ceilings) Defense industry Medical industry Semiconductor industry Fishing industry

### A-5-PLASTISOL

Vinyl plastisols are dispersion of special, fine particle size PVC resins in plasticizing liquids. These materials are liquid at room temperature, but as the compound is heated in the finish oven, fusion takes place and the liquid is converted into a tough, homogeneous mass. The benefits of plastisol coil coating are numerous. Plastisol coil coating can add color, cushion, texture, safety, and quiet to the surface of your product or part, while simultaneously resisting abrasion, corrosion and electricity.

Heat or light stabilizers, flame retardants, bonding agents and other additives are available to meet a variety of specifications including Automotive and Military applications. Plastisol coating can offer properties such as non-slip, cushioning, color coding, electrical insulation, abrasion resistance, impact resistance, weather and



## DIFFERENCE BETWEEN RMP AND PVDF PAINTS

		RMP	PVDF
General Information	Resin System Film Formation Peak Metal Temperature	Polyester & Melamine Cross Linking 224 - 235 C	Polyvinidene Fluoride & Acrylic Fusion 249 - 254 C
Physical Properties	Primer & Coating thickness Topcoat & Coating thickness MEK Double Rub T-Bend Reverse Impact Cross-Hatch adhesion Pencil Hardness	Polyurethane / Polyester Primer at 4-6 microns 18-20 100 D/R Pass 2-3T 13J (No paint Removal) No paint Removal Fmin	Polyurethane primer at 5-7 microns 20-22 100 D/R Pass 0-1T 13J (No paint Removal) No paint Removal Bmin
Water Boil adhesion		Pass	Pass
Physical Properties	Humidity Resistance (HDG) QUV	No blistering, Peeling, Cracking, loss of gloss or softening of the finish up to 2000hrs of exposure to 100% Humidity at 100+/- 5%. QUV A UV cycle-4hrs at 75°C Condensation-4 hrs at 50°C Colour change is not more than 5 NBS unit as per ASTM D 2244-89 no chalking greater than #2 rating as per AS1580-481-11, Gloss retention is not greater than #3 rating as per AS1580-481-5 No blistering and adhesion loss after 1000 UV hrs exposure. Note: performance is based on colour, pigmentation chemistry dependant	QUV A UV cycle-4hrs at 75°C Condensation-4 hrs at 50°C Colour change is not more than 5 NBS unit as per ASTM D 2244-89 no chalking greater than #2 rating as per AS1580-481-11, Gloss retention is not greater than #3 rating as per AS1580-481-5 No blistering and adhesion loss after 1000 UV hrs exposure. Note: performance is based on colour, pigmentation chemistry dependant
	Salt Spray Resistance (HDG)	Sample subjected to 5% neutral salt solution spray exhibit no blistering after 1000 hrs of exposure.	Sample subjected to 5% neutral salt solution spray exhibit no blistering after 2000 hrs of exposure.
Chemical Resistance	30 minutes exposure to 10% HCL Solution (Spot Test) 30 minutes of exposure to 5% NaOH solution Film Integrity Chalk retention ASTM D4214 Method A	No color change and no blister no color change and no blister 10 Years Rating > 2	No color change and no blister no color change and no blister 20 Years Rating > 4



## COLOUR COATED COIL SPECIFICATIONS

**Innovation is our Mission. It is key for providing our customers with a competitive advantage. Our innovative engineering team applies our technology to offer a tailor made solution to your individual requirements consistent with your preferences, production goals and budgets.**

**The competitive advantage of HiTo stems from being able to offer the world's best technology at competitive pricing, with the backup of full & ongoing specialist support. In short, we offer a world class supply solution that is second to none.**

CONTENTS	SPECIFICATIONS
Base Metal	Cold Rolled, Galvanised, Aluminium zinc Alloy, Stainless Steel and Aluminium
Thickness - TCT	0.18 to 1.25 mm *
Width	600 to 1500 mm
Coil ID	508 and 610 mm
Coil OD	1650 mm max
Coil weight	12 MT max
Hardness (HRB)	35 – 99
YS (MPA)	240 – 550**
PAINT Systems	Primers: Polyester, Polyurethane & Epoxy Top Coat: Regular Modified Polyester (RMP), Silicon Modified Polyester (SMP), Super Durable Polyester (SDP), Poly Vinyl Di Fluoride (PVDF), Polyurethane (PU), Acrylics, Metallics & Plastisol Back Coat: Epoxy, Polyester & PU
Paint Thickness	Top Coat (Primer +Top): 5 + 5, 5 + 15 & 5 + 20 micron DFT Back Coat (Primer + Back): 5 + 5, 5 + 8, 5 + 12 micron DFT
Paints for Special Application	Zero T Paint System, Lead-free Paint System, Food Grade Paint System, Hard Top Coat, Wrinkle Finish, Wood Grain Finish, Chalk Board Finish, etc.
Colours	As per RAL K5 shades/customer requirements ***
Guard film (optional)	35 to 100 micron +/- 5 microns
Standards for Products & Tolerances	JIS G 3312, ASTM A 755 / A 755 M, ASTM A924 / 924 M, EN 10169, EN 10143, AS 2728 & IS 14246.
Packing	Sea-worthy export packing, eye-to-sky & eye horizontal, with and without wooden skid.
* =	0.15 – 0.20 mm are available in Full Hard only. Above 1.25 mm can be processed in specific grades / width combination.
**=	On request high strength material up to 750 MPA can be supplied.
***=	Various combinations of colours, innovative patterns like camouflage, wood finish, wrinkle finish, chalk board and marble finish.

## Packaging

hito offers its products with effective packaging as per customer requirements and in compliance with international norms. Emphasis is placed to ensure durability, prevention of any damage during transportation and better storage. hito with its years of experience and regular benchmarking with various national and international companies, endeavours to improvise packaging in accordance with changing customer needs. hito has a stringent procedure for evaluating the competency level of suppliers for packaging material.

Material quality is verified at the well-equipped and sophisticated JSW laboratory before offering for use. The packing requirements for export and domestic markets are different. However, the type of packaging is determined in consideration of the following points:

- Customer needs
- Duration of transportation
- Environmental conditions during transit
- Handling during transit
- Handling at customer's premises
- Storage practices
- International regulation on package material

## The number and types of industrial sensors used

### Current sensors up to 160 number

One of the most common uses of sensors to control manufacturing processes is to monitor the flow of power to electric motors, and to detect spikes in current that can mean that equipment is not operating as expected. Current sensors are especially useful to prevent excessive damage to equipment due to power spikes, which can reduce costs by enabling automatic shutdown. By powering equipment down and allowing technicians to troubleshoot and repair instead of constantly replacing motors and other components, current sensors can provide a return on investment many times over.

### Pressure sensors up to 200 number

Pressure sensors are counted among the most common sensors used in manufacturing and maintenance. Pressure sensor equipment uses a pressure-sensitive element to output a signal, which can then detect flow pressure that is higher or lower than normal and trigger an alarm for defined events or scenarios. These types of sensors are suitable for liquid or gas conduits and can alert personnel to the need for scheduled or unscheduled maintenance. Pressure abnormalities — whether higher or lower than expected levels — can indicate component wear and tear, system malfunction and other conditions that require attention before they lead to unplanned downtime.

### Humidity sensors up to 60 number

Air quality sensors are used to measure a number of conditions in the ambient environment, including temperature, airflow and the presence of potential contaminants. Humidity sensors operate in a similar fashion to other industrial sensors and controls and are well-suited to operate in conjunction with other sensors to provide a holistic picture of air quality and ambient conditions around machinery. These sensors can indicate:

Potential maintenance scenarios due to higher operating temperatures, which can be caused by excessive equipment friction  
Health and safety risks if gas or other contaminants are leaking out of equipment  
Abnormal operation if air pressure readings are outside of normal levels, especially around intakes and exhaust areas  
With early detection of these scenarios, maintenance personnel can troubleshoot and remedy problems before they can shut down or damage equipment.

## The number and types of industrial sensors used

There are numerous types of manufacturing sensors and process controls used, each designed to monitor and collect data about different processes, vectors and equipment performance metrics. Each of the types of sensors used in industrial automation serves a purpose. Not all sensors will be required for all applications — the implementation should be determined by the equipment in use as well as the objectives of the predictive maintenance strategy. These sensor types include the following:

### Vibration sensors up to 140 number

Tri-axial accelerometer sensors monitor vibration on rotating equipment and take measurements including velocity, acceleration and displacement. This data is useful to track the consistency of peaks and valleys in equipment vibration. If vibration occurs in a predictable way, it can be assumed that the equipment is operating as expected. If there are fluctuations or deviations from a consistent vibration readout, it will almost always mean that the equipment is not operating as intended and that further investigation (and maintenance) is warranted.

Because so many pieces of manufacturing equipment, across all industries, use rotating parts, vibration sensors are among the most common — and useful — types of sensors to enable reliable, effective predictive maintenance. These sensors — and the personnel who interpret and act upon the data they collect as part of a vibration analysis program — are equipped to identify even the slightest vibration fluctuation, so that maintenance can be scheduled well before a catastrophic equipment failure or shutdown occurs.

### Temperature sensors up to 80 number

Temperature is one of the most reliable indicators of the healthy performance of a piece of equipment, and temperature sensors can provide timely and accurate insight into these conditions. In general, a piece of equipment can be expected to operate at a consistent temperature, with cooling elements (such as coolant, airflow or water) in place, if necessary, to facilitate adherence to consistency. Thus, unexpected and uncontrolled temperature fluctuations or spikes are likely to mean that something is not operating at peak performance in a piece of equipment.

Here are just a few of the possible reasons:

Equipment wear, causing the equipment to require more power to achieve the same result

Loose or damaged components, leading to increased friction or inefficient operation

A failure of the cooling system, which can lead to dangerous overheating, equipment damage and production interruptions



## AI Developments Used in CCL Line

### Machinery

With AI entering the manufacturing floor, starts the use of digital technology to replace not only “muscles” but also “brains”. In the last few years, AI has become deeply embedded across industrial and other applications, with initial use cases using AI in manufacturing representing niche applications and expanding into mainstream production.

Operating, checking, and improving functioning and efficiencies in industrial pieces of machinery requires AI-based solutions designed with embedded technical robustness and safety. The industrial AI systems must be assessed to withstand potential attacks (along with unexpected functioning in new environments) and have fallback plans and similar general safety mechanisms in place. The use of AI solutions has the potential in autonomous 182 AI in Industrial Machinery.

**Assisted intelligence:** This hardwired AI technology helps humans perform tasks. It doesn't learn from humans but rather provides guidance that enables more accurate task completion. An algorithm that analyses inventory levels falls into this category.

**Augmented intelligence:** A level up from assisted intelligence, augmented intelligence systems enhance humans' capabilities, but they use machine learning (ML) to incorporate input from humans and other systems to get “smarter.” An example of augmented intelligence in manufacturing is AI-guided work instructions.

**Automation:** AI-driven automation involves processes that require no routine human input. Robotic process automation (RPA) is an example of automated intelligence in manufacturing.

**Autonomous intelligence:** This is the most advanced form of AI in manufacturing. Autonomous intelligence technology acts independently of human input, taking over manual and cognitive tasks that require fast adaptation to new data. One example includes self-driving warehouse vehicles.

You can use artificial intelligence for manufacturing for a wide variety of purposes. Often-times, you'll need to implement AI technology from multiple categories mentioned above to maximize efficiency.

## How Is AI Used in the Manufacturing Industry?

Every year, industrial organizations are finding more uses for artificial intelligence in manufacturing processes. AI finds unique use cases in almost every facet of manufacturing, and its adoption is projected to increase exponentially over the next decade.

### Using AI for quality control

Artificial intelligence enhances quality control in a few key ways. It enables automated product inspections, visual data set analysis, and real-time quality defect detection.

For instance, machine learning algorithms can instantly identify deviations from quality specifications. Predictive maintenance systems use AI to detect potential equipment failures before they occur. Applications like these reduce human error and elevate adherence to quality standards.

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**Implementation costs:** Like most advanced solutions, AI for manufacturing is expensive to configure and update, and many smaller manufacturers lack sufficient funds to purchase the AI solutions they want. However, AI implementation can be done in stages and doesn't require a complete system overhaul, depending on how you plan to use it.

**Data silos and disconnected systems:** If you have trouble sharing data across your organization because it's locked up in disparate systems, you'll have an even harder time implementing AI solutions. Seamless data sharing is critical for getting the most out of your manufacturing AI. Make sure you remove all barriers to effective collaboration before introducing new, advanced technologies.

**Data management and security:** With IoT sensors and devices all across production floors, manufacturers can generate massive volumes of data. You need to set a proper infrastructure and data management practices to clean and feed that data to your AI algorithms. And, as you go digital, you should have a solid data security strategy to minimize increasing cybersecurity risks.

**Adoption and change management:** Whether workers are intimidated by the new technology or lack the resources to master it, it's crucial to lay the proper training foundation for seamless AI adoption. Your new solutions should enhance worker productivity not hinder it.



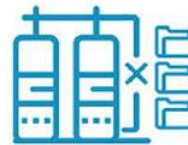
DATA MANAGEMENT  
AND SECURITY



ADOPTION AND  
CHANGE  
MANAGEMENT



IMPLEMENTATION  
COSTS



DATA SILOS AND  
DISCONNECTED  
SYSTEMS

## Nano Coated Steel

Nano coated steel is a new type of building material for high temperature and high corrosion applications. Nano coating has excellent resistance to heat, corrosion, fire, acid, and alkali. At the same time, it also has great performance in noise reduction, energy saving, and environmental protection. Due to its advantages, it is considered an ideal roofing and exterior wall material, which is widely used in civil buildings, granaries, steel mills, power plants, chemicals, breeding, and other fields.

### What Is Nano Coated Steel?

Nano coated steel is a composite metal sheet, using galvanized steel, or color coated steel, or aluminum sheet, as base metal. And then the substrate is covered with a nanomaterial layer, including anti-aging adhesive, spectral reflection aluminum foil, and anti-aging PET film (as shown in the picture below). Nano anti-corrosion material refers to materials with a size between 100-0.1nm. It is applied on the surface of base metal to achieve the effect of heat insulation and corrosion resistance.

### Advantages of Nano Coated Steel

#### 1. Strong anti-pollution & anti-static capacity

The surface of the nano coated steel is very dense and smooth. Besides, it is able to eliminate the electrostatic effect so it is very difficult for dust, oil fume, and other dirt to be adsorbed on its surface. Moreover, it is easy to clean.

#### 2. Super wear resistance

The wear resistance of the nano coated steel is 10+ times stronger than that of ordinary coatings, so it is not easy to leave scratches.

#### 3. Excellent thermal insulation performance

Nano coated steel is of higher light reflectivity and lower thermal conductivity than other materials. Due to spectral reflection film, 80-90% of visible light with wavelengths of 0.38-0.76μm can be reflected, and 100-75% of infrared light with wavelengths of 0.76-100μm can be reflected.

The reflection coefficient is higher than 80%, which means more than 80% of heat can be scattered, and only a tiny part can be absorbed. Moreover, the thermal conductivity of nano coated steel is 2.93W/m.k., while that of common color coated steel is 40W/m.k. So the surface temperature of nano coated roofing can drop by 15-10℃ in summer, and the indoor temperature will be 10-5 lower.

#### 4. Long service life

Nano coated steel has excellent acid and alkali resistance, weather resistance, fire resistance, and corrosion resistance. Its design life is more than 15 years. It can be guaranteed for 10 years even in corrosive environments such as acid corrosion, high/low temperature, etc. That's why it is widely used as roofing and exterior wall materials.

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