

# RE/MAGINEERING INNER STRENGTH WITH THE POWER OF MAGNESIUM

# Optigal<sup>®</sup>

**GLOBAL PRODUCT FIRST TIME IN INDIA**

Next generation Zinc-Aluminium-Magnesium  
alloy coated-steel substrate technology.

## **ABOUT AM/NS INDIA**

AM/NS India is the joint venture between ArcelorMittal and Nippon Steel – two of the world's leading steel companies. As an integrated steel manufacturer with iron-making, steel-making and downstream facilities spread across India, we produce over 600 varieties of steel for a range of applications across industries. Our goal is to create smarter, more sustainable steels for India that empower its growth trajectory and enable brighter futures for all.

### **AM/NS India Hazira Steel Plant**

With a capacity of 10 Million Tonnes Per Annum (MTPA), the AM/NS India Hazira Steel Plant in Gujarat is an integrated, sophisticated and environment-friendly facility that is one of the largest single-location flat steel plants in the world. The plant incorporates comprehensive support infrastructure that includes power, lime and oxygen plants, a township and a captive port that can accommodate capesize vessels. This modern operations and handling system enables self-sufficiency and global logistics.

## **OUR LARGE COLOUR COATING AND GALVANIZING FACILITIES AT HAZIRA, PUNE, KHOPOLI AND GANDHIDHAM.**

AM/NS India has some of the largest Colour Coating and Galvanizing facilities in India, operating from Hazira, Pune, Khopoli and Gandhidham. These facilities have a galvanised steel capacity of over 2.03 MTPA with 0.72 MTPA of colour-coated steel available in over 4500 bespoke shades, finishes and textures.

Durable, reliable and sustainable, Pre-Painted Galvanised Iron (PPGI) from AM/NS India has become one of the most preferred products in the category with pre-painted steel supplied to over 110 countries across the globe.



# WHAT IS OPTIGAL® TECHNOLOGY?

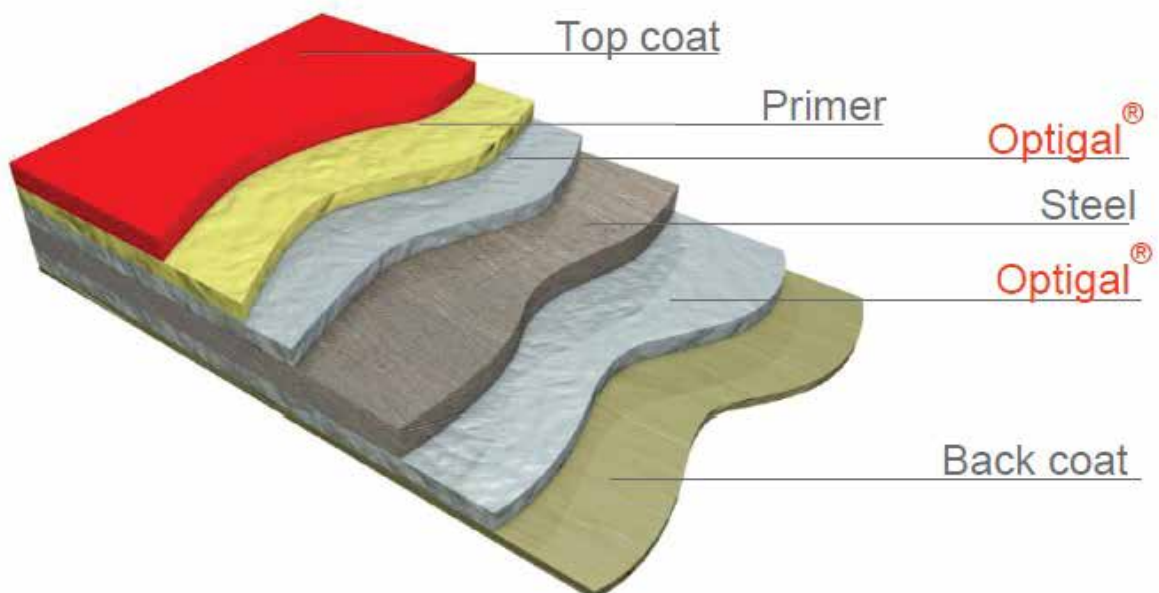
Optigal® is an innovative zinc-aluminium-magnesium alloy based technology, patented by ArcelorMittal Europe, and optimised for a new generation of better performing and more sustainable, colour coated steels.



# THE OPTIGAL<sup>®</sup> MANUFACTURING PROCESS

Optigal<sup>®</sup> steel coating is produced by hot dip galvanization of the steel in a unique bath of zinc-aluminium-magnesium alloy. This creates the ideal substrate for pre-painted steel, combining all the properties required to deliver excellent corrosion resistance, formability, lightness and sustainability, that is far superior to other metal coatings.

The magnesium in the alloy coating reduces 'edge creep' while the zinc provides traditional cathodic protection. This unique alloy combination delivers high durability and beauty, you expect in Optigal<sup>®</sup> that starts from inside.

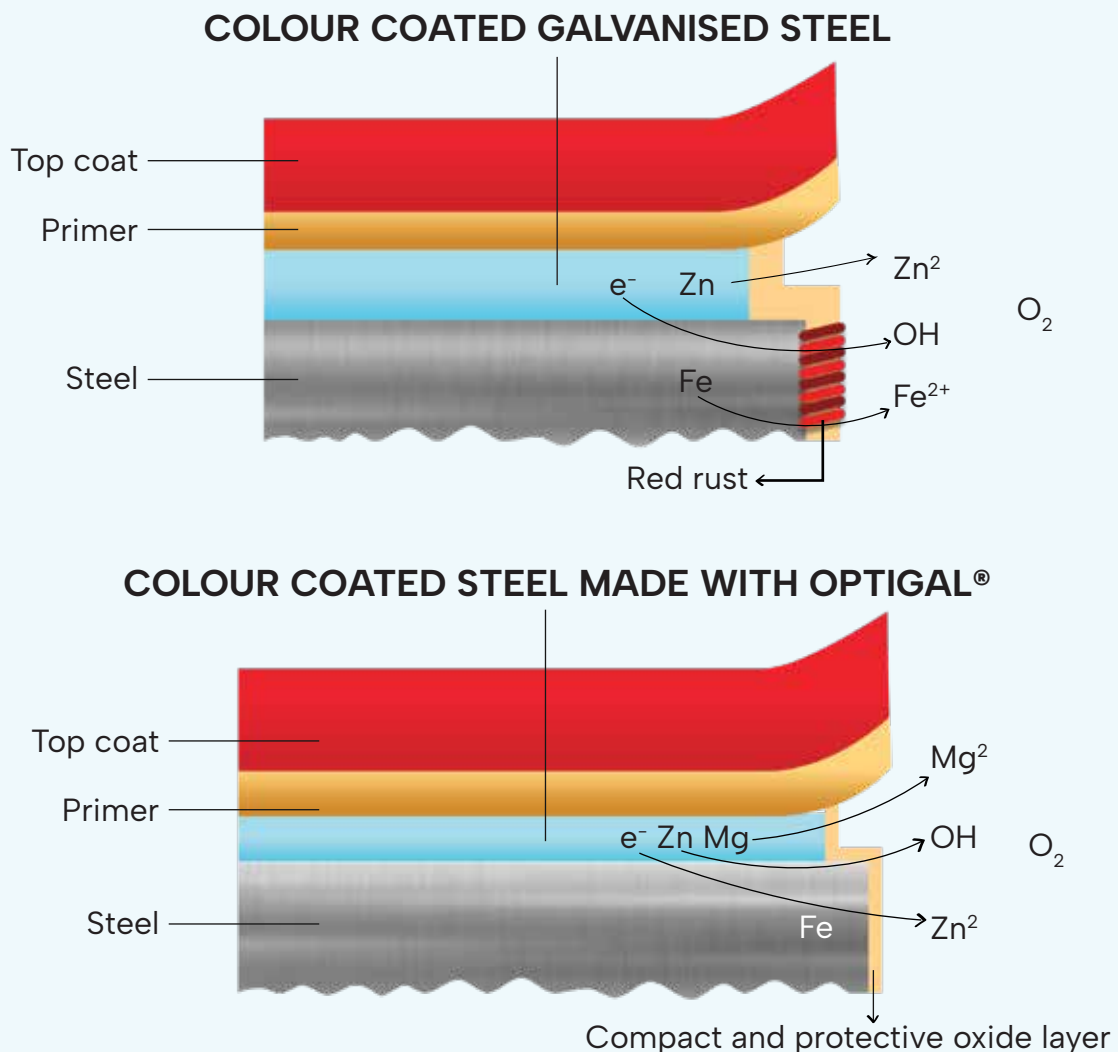


# ADVANTAGES OF USING OPTIGAL®

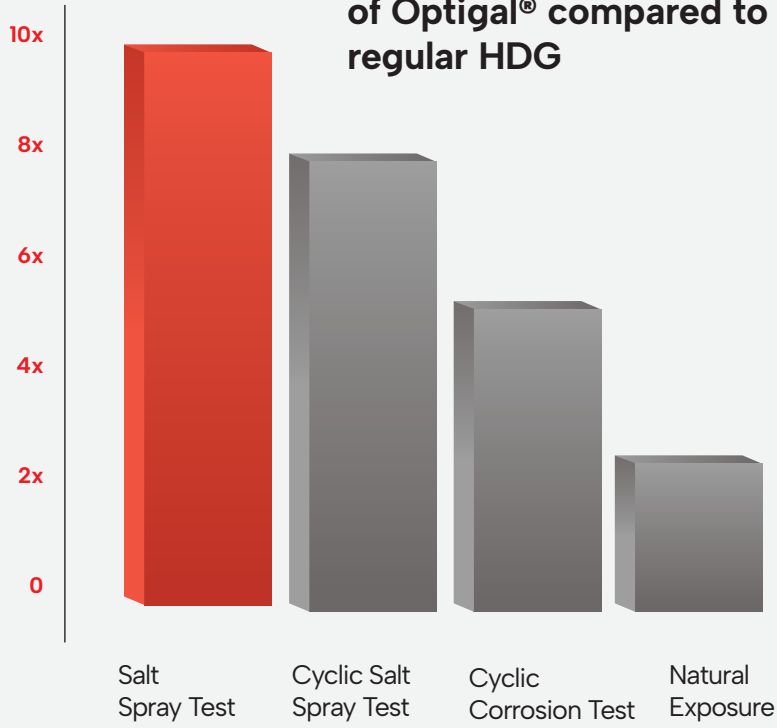
01 /

## SUPERIOR CORROSION RESISTANCE

The unique alloy composition of Optigal® with optimal balance between zinc, aluminium and magnesium, provides superior corrosion resistance.

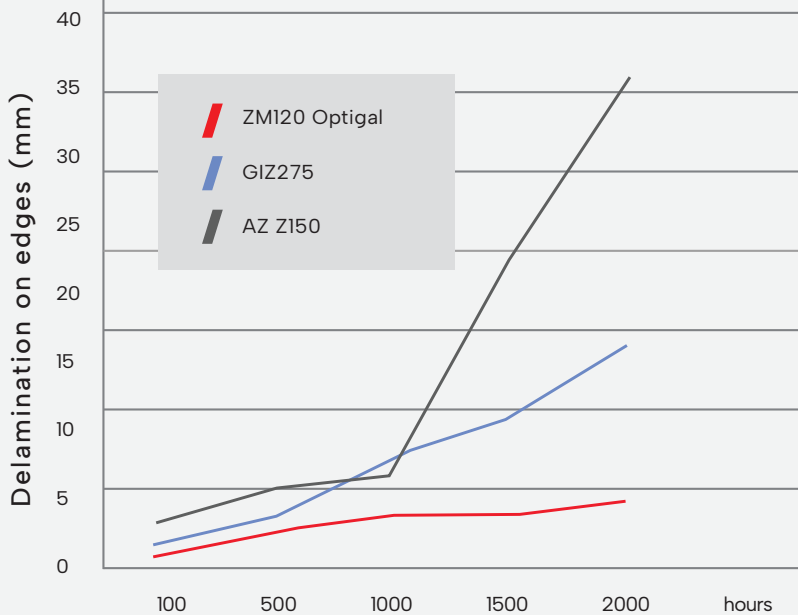


### Corrosion resistance rates of Optigal® compared to regular HDG



All tests show that Optigal® technology delivers a performance that is at least 3x better than other metal coatings.

### Salt Spray Test DIN EN ISO 9227 on 25µ colour coated steel



Optigal® exhibits superior durability during accelerated corrosion tests. **The difference is even more visible after 1000 hours in salt spray test when compared with other typical substrates.**

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## **EXCEPTIONAL 'CUT EDGE' PROTECTION**

Pre-painted steel with Optigal® technology delivers exceptional cut-edge protection performance. It forms a highly compact and stable protective layer at an early stage, leading to a much lower paint delamination on edges and scratches with a performance that is at least 3x better than other metal coatings.

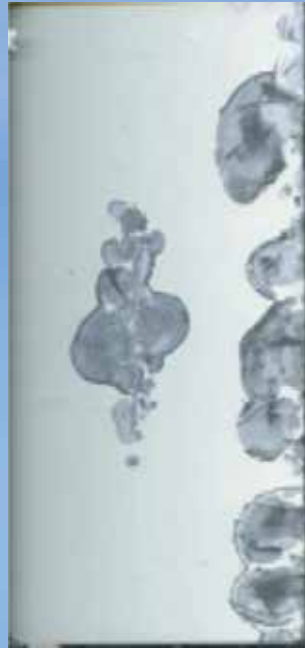




**/ Optigal ZM120**



**/ PPGL/Z275**



**/ PPGL/AZ150**



**Salt Spray Test DIN EN ISO 9227, 2000h, on 25 $\mu$  colour coated steel**



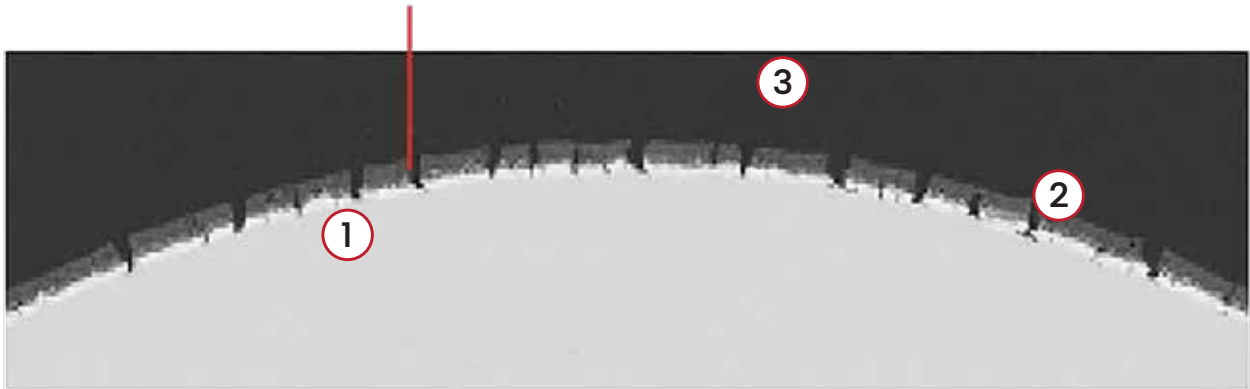
# 03/

## **OPTIMISED FLEXIBILITY**

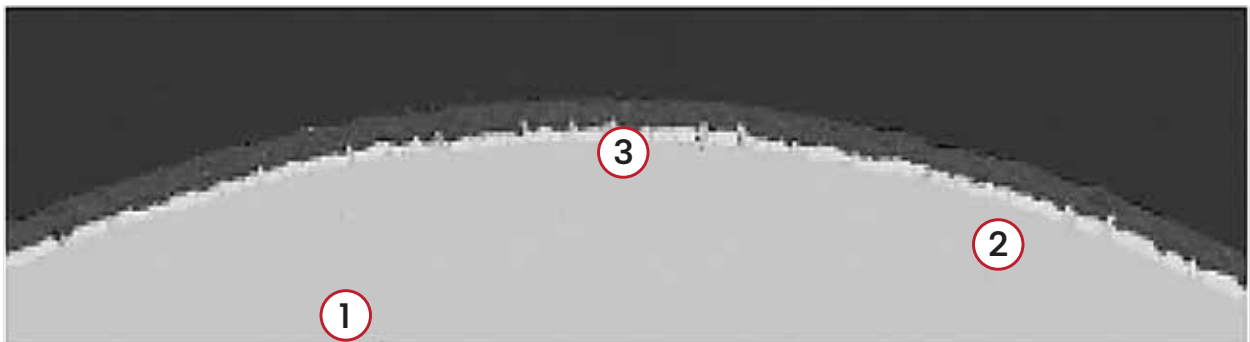
The highly resistant, adherent metallic layer of specially designed Optigal® coating is processable in terms of bending, roll forming, profiling, and other work processes, without developing any cracks on the bends.



Cracks



**COLOUR COATING CRACKS APPEAR IN OTHER COATINGS (3T BENDING)**



**NO CRACK APPEARS IN THE PAINT LAYER WHEN USING OPTIMISED OPTIGAL® (3T BENDING)**

T-bend (adhesion of the coating)  $\leq 2 T$

T-bend (resistance to cracking on bending)  $\leq 3 T$

1) Steel 2) Metallic Layer 3) Paint

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## REAL WORLD TESTING FOR REAL ASSURANCE

Optigal® has been tested for over 10 years in various natural environments (C3 rural, C5 marine) and results confirm its excellent behavioral characteristics.



OPTIGAL ZM120 WITH GRANITE STANDARD  
(25U) AFTER TWO YEARS OF EXPOSURE  
IN BREST ACCORDING TO EN10169

FRENCH CORROSION INSTITUTE IN  
BREST, FRANCE (C5M)



TEST	DURATION	CORROSION RESISTANCE RESULTS
Salt spray test ASTM B 117	1500h	No blistering Optigal® > PPGI, PPGL

This product is eco-friendly because it is free of hexavalent chromium and heavy metals, minimizing its environmental impact and promoting safety and sustainability.\*

\*T&C Apply



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## A PRODUCT THAT IS INTERNATIONALLY TESTED AND CERTIFIED

Optigal® has been approved by independent European certification bodies, like CSTB (Centre Scientifique et Technique du Bâtiment), DIBT (Deutsches Institut für Bautechnik) and ITB (Instytut Techniki Budowlanej).

**CSTB**



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## AN ECO-FRIENDLY AND SUSTAINABLE CHOICE

Optigal® is a new age metallic coating that offers significant sustainability advantages over other metal coatings.

- / Lower zinc use contributes to lower mineral extraction & reduced transport emissions.
- / The lighter weight of Optigal® raises transport efficiency and reduces energy costs.
- / Use of Optigal® increases the lifetime expectancy of the building and therefore preserves resources.



\*T&C Apply



# OPTIGAL® APPLICATIONS



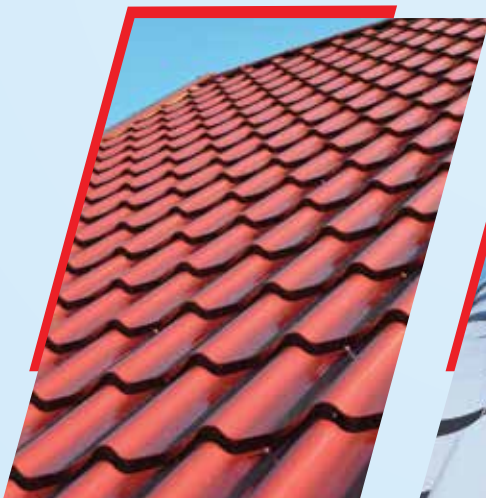
Steel Cladding



Roofing Profiles



Sandwich Panels



Roofing Tiles



Architectural Facade



# OPTIGAL® SPECIFICATIONS

## SPECIFICATION FOR OPTIGAL®

SR.NO	PARAMETER	SPECIFICATIONS
1	Thickness (mm)	0.40 - 0.80 mm
2	Thickness Tolerance	0.40 - 0.60 - +/-0.025 mm 0.60 - 0.80 - +/-0.03 mm Or as per order condition
3	Width Range	1000 - 1250 mm
4	Width Tolerance	+6/-0 mm
5	Mechanical Properties Ref Standard - EN10346:2015	S250GD/S280GD/S320GD/S350GD/S550GD
6	ZM Coating	ZM 80 - ZM120
7	Paint Type	RMP/SMP/SDP/PVDF
8	Top Coat- DFT (μ)	5μ Primer + 20μ Top Coat*
9	Bottom Coat- DFT (μ)	5μ Primer + 5μ Back coat*

\*Lower/Higher coating can also be supplied on case to case basis

## PERFORMANCE QUALITY TESTS

SR.NO	PARAMETER	SPECIFICATIONS
1	Pencil Hardness	2H
2	T Bend	3T - S250GD/S280GD/S350GD 6T - S 550GD
3	MEK	100 DR min
4	Scratch Resistance	1.5 Kg
5	Cross Hatch	1mm X 1 mm
6	Reverse Impact	10 J min S550GD - NA
7	QUV (1000 hrs) ASTM G 53-94	DE - 5 max Gloss Retention - 30%min
8	Gloss	30 - 60 GU or as sample
9	Delta E	< 1.0 for Light Shade < 1.5 for Dark Shade NA for Metallic and Wrinkle Shades

## MARKING AND PACKAGING

SR.NO	PARAMETER	SPECIFICATIONS
1	Guard Film	As per order (50μ min)
2	Packing	Standard Metal Packing
3	Coil Wt	1.50 MT - 10 MT
4	Liner Marking	Sandwich Liner Marking (Ink Jet Printing - Under Back coat)
5	AMNS Monogram	As per order
6	ID Sleeve	5 mm Card Board Sleeve



# AM/NS INDIA

ArcelorMittal Nippon Steel India



Scan to connect on WhatsApp  
or just send 'Hi' on 7208414333

Toll Free Number: 18003098905

ArcelorMittal Nippon Steel India Ltd. 27km, Surat-Hazira Road,  
Surat, Gujarat, India - 394270.

 [brands@amns.in](mailto:brands@amns.in)

 [AMNSIndia](https://www.facebook.com/AMNSIndia)

 [AMNSIndia](https://www.linkedin.com/company/AMNSIndia)

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