

**iSTEEL ZINC**  
**GALVANISED XLS TMT**

iSTEEL

**ZINC**

Only the best  
for you



## Standing the test of time

In our younger years, any long journey involved looking out the window. One would notice towering EB power lines, soaring radio towers to sturdy concrete lamp posts. These structures still stand tall after decades, weathering the seasons. Ever wondered what quality they all share in common? Zinc!

Presenting iSTEEL Zinc Galvanized XLS TMT, built to resist natural and man-made pollutants and damage. As you flip through the pages of this brochure, you will discover how zinc bars form the backbone of the world's most iconic structures. If such monuments rely on galvanized steel, why must our homes settle for less?

# 'Forever'

since 1998

iSTEEL was developed to disrupt a commoditized construction steel market. Two decades later iSTEEL is a brand customers trust to build their dream homes. Headquartered in Chennai, we have built happy homes across Tamil Nadu, Kerala, Karnataka, and Andhra Pradesh.

## A few distinguishing features:



Many pioneering product initiatives



Educating the masses on choosing good quality steel bars



Factory Fresh Steel



ISI and ISO Certified



Green Pro Certified



NABL Certified Laboratory



Strong R&D Department



350+ Dealers across South India

# 3 times

the life for your home

Zinc's enduring strength and versatility have been evident for centuries now. From its use in building bridges in ancient Rome to its inclusion in the construction of buildings in 19<sup>th</sup> century Europe, Zinc's anti-corrosion properties have made it indispensable. Today, galvanized steel, an alloy of zinc and iron, is widely used in modern structures to withstand challenges.

# Benefits

of iSTEEL Zinc Galvanized XLS TMT bars



#### Expanded Lifespan

Buildings constructed with iSTEEL Zinc Galvanized XLS TMT Bars can expect a lifespan of up to 150 years, compared to 50 years with regular TMT bars.



#### Superior Corrosion Resistance

The zinc coating provides reliable protection against corrosion, making the bars perfect for coastal areas, industrial and marine environments.



#### Lower Total Cost of Ownership

Despite the initial higher investment, iSTEEL Zinc Galvanized XLS TMT Bars offer long-term cost savings with reduced RCC maintenance, repairs and upkeep.

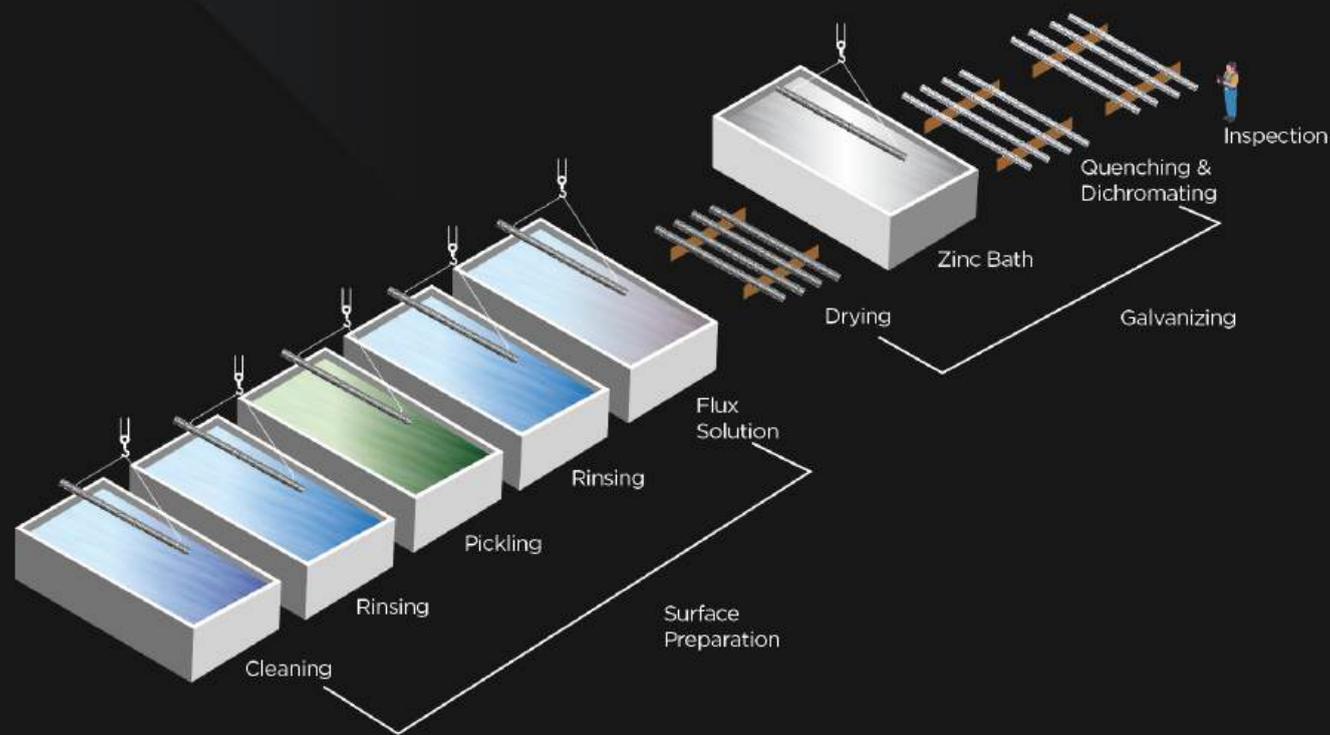


#### Environmental Protection

Featuring recyclable zinc coatings, these bars contribute to reducing environmental impact through fewer replacements and repairs.

# Hot-dip galvanizing process

Galvanization involves applying a protective zinc coating to steel or iron to prevent rust and corrosion. In hot-dip galvanization, surfaces are dipped in molten zinc, providing comprehensive coverage. The slow corrosion of zinc prolongs its effectiveness, and cathodic protection prevents rust even in exposed areas. The process begins with cleaning the steel, followed by immersion in a bath of liquid zinc heated to 830°F (450°C), then cooling.



# Galvanizing process

- **Cleaning:** Alkali solution removes dirt, paint, grease, and oil. Other contaminants are removed via grit or sand blasting.
- **Rinsing:** The bars are thoroughly rinsed with water.
- **Pickling:** Steel is immersed in dilute hydrochloric or sulphuric acid to remove oxides and mill scale, followed by rinsing.
- **Rinsing:** The bars are thoroughly rinsed again with water.
- **Fluxing:** Steel is cleaned of oxidation and coated with a protective layer using a slightly acidic flux solution.
- **Zinc Bath:** Steel is dipped in a kettle containing at least 98% pure zinc heated to 820-860°F (438-460°C) until the diffusion reaction completes, typically lasting less than ten minutes.
- **Quenching:** Steel undergoes quenching in a tank with water after which, chemicals are added to enhance the galvanized coating's protection during storage and transportation.
- **Dichromating (Passivation Treatment):** The hot dipped galvanized layer of zinc is covered with chromate post-treatment.
- **Inspection:** The bars are checked for quality and uniform distribution of the zinc coating over them.



## TECHNICAL DETAILS

-  Minimum Zinc Coating as per IS 12594 – Minimum 610 GSM or 85 Microns.
-  Zinc forms a protective oxide coating upon exposure to the atmosphere, making it more corrosion-resistant than iron.
-  Zinc's preference for oxidation over iron provides protection to the steel surface, even if cracks are present.

## MECHANICAL PROPERTIES

iSTEEL ZINC Galvanized XLS TMT	Yield Stress (N/mm <sup>2</sup> ) (Min)	Elongation in % (Min)	Ultimate Tensile Strength (N/mm <sup>2</sup> ) Min
	550	16	585

## CHEMICAL PROPERTIES

iSTEEL ZINC Galvanized XLS TMT	Carbon in % (Max)	Sulphur in % (Max)	Phosphorous in % (Max)	Sulphur + Phosphorous in % (Max)	Manganese in % (Max)	CRE Elements in % (Min)
	0.250	0.055	0.055	0.105	1.000	0.400

\*Corrosive Resistance Elements (Copper, Nickel & Chromium)

# Let the facts speak for themselves

A Salt Spray Test, also known as a Salt Fog Test, was conducted to evaluate the corrosion resistance of our Zinc TMT Bars. Both regular Steel Bars and Zinc Galvanized XLS TMT Bars were exposed to periodic spraying with a 5% NaCl solution.

As expected, regular Steel Bars corroded quickly, while iSTEEL Zinc Galvanized XLS TMT Bars remained undamaged. The test results showed that even 388 hours after the Salt Spray Test, the galvanized bars did not show any sign of corrosion when compared to the regular bars.



8 hours



24 hours



72 hours



192 hours



288 hours



388 hours



## Handling & storage process

- Use normal handling tools and machines for unloading. Use plastic, synthetic straps to handle them at the site.
- Raise the coated re-bars off the ground by 150mm for long term storage. Use non-metallic blocks like concrete for raising.
- Keep away from other uncoated steel re-bars and avoid direct contact with water/moisture.
- The coated re-bars should be covered using a Tarpaulin and kept secure by Cinder blocks at the corners and edges to prevent them from being exposed to rain/water.
- Any galvanized rebar must be cut and bent, and only then used. This can be done at the site. The cut edges of the bar need to be coated with zinc paint.
- Care must be taken to use only plastic ties or galvanized binding wire during construction.

# Architectural marvels incorporating zinc

Zinc has been the cornerstone of durability for these architectural wonders, ensuring they endure through the ages. Now, you have the chance to build an iconic and timeless home using ISTEEL Zinc Galvanized XLS TMT.

BURJ KHALIFA



The world's tallest structure, located in Dubai, standing at a whopping height of 828 metres, uses 55,000 tonnes of galvanized steel rebar. The steel acts as a protection system under the concrete to neutralise the groundwater and prevent corrosion.

LOTUS TEMPLE



The Lotus Temple, in India's capital, features petal-shaped structures clad in white marble panels. Reinforced with 300 tonnes of galvanized bars, it prevents rust staining on the concrete body and avoids surface cracks caused by the city's humidity.

BROOKLYN BRIDGE



The Brooklyn Bridge built in 1869, which was the first to utilise hot-dipped galvanized cables, spans 32,500 km with over 6.8 million pounds (2300 tonnes) of steel wires. Galvanization protects the cables from rust due to rain and salty East River water.

KEDARNATH PILGRIMAGE TEMPLE BRIDGE



Following the devastation caused by the 2013 Uttarakhand floods, Kedarnath saw the development of a new bridge made of galvanized steel, to ensure that it does not collapse under the difficult weather conditions of the area.

KARLSTAD BRIGADE MUSEUM, SWEDEN



This popular museum in Karlstad, Sweden, is constructed with hot-dip galvanized, 3 mm, diamond-shaped steel plates that were overlapped and screwed onto its walls at the top.

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