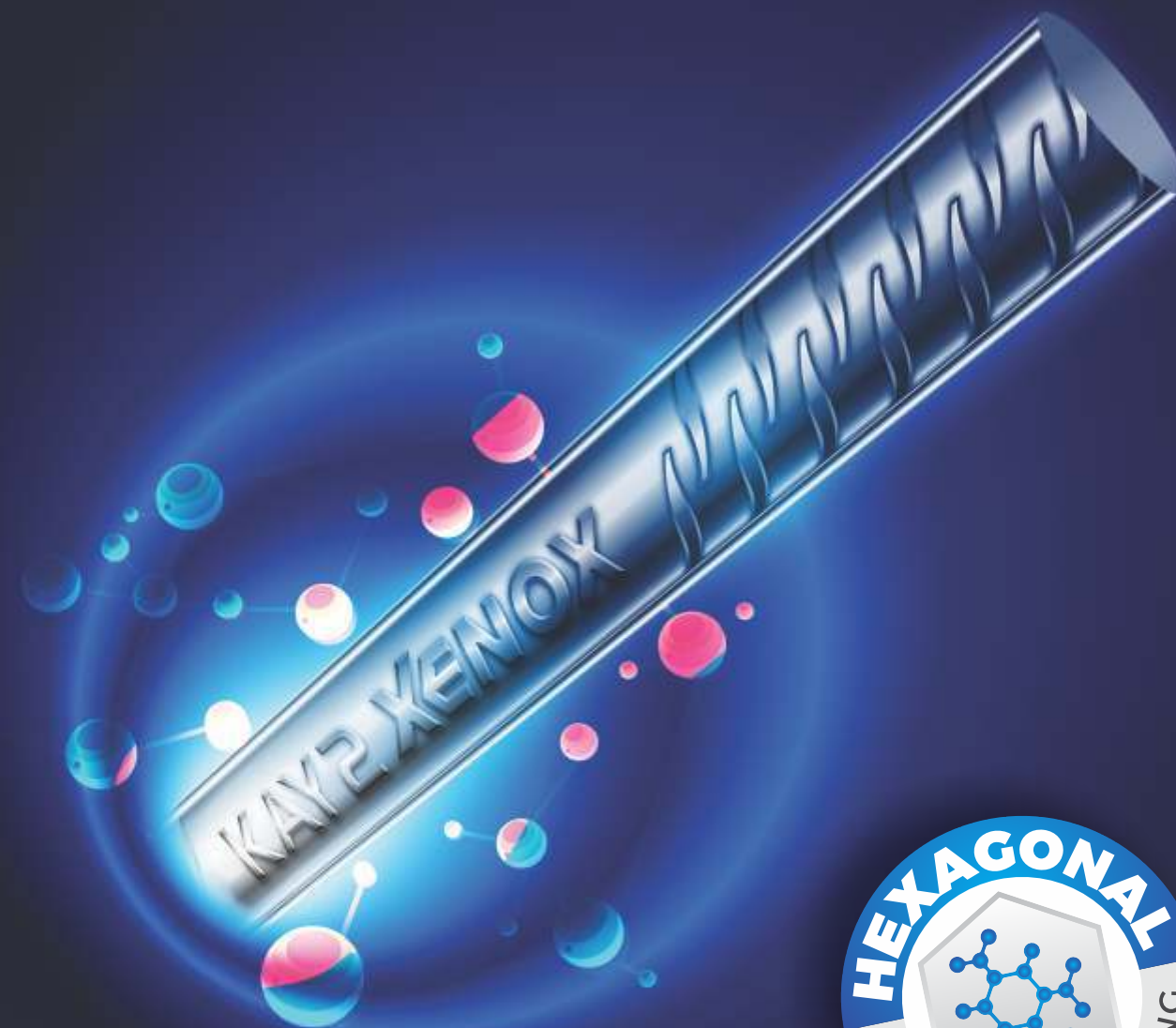


# Kay2 **XENOX**

THE **INTELLIGENT** STEEL



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WINNER OF THE INDIA'S  
GREATEST BRAND AWARD 2017-2018



WINNER OF THE INDIA'S  
EXTRA ORDINAIRE BRAND AWARD 2018-2019



THE **INTELLIGENT** STEEL





# OVERVIEW

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KAY2 Xenox: The Intelligent Steel

Hexagonal Molecular Bonding

KAY2 Xenox Features

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- Superior Bendability
- Better Weldability
- Corrosion Resistance
- High Temperature Resistance
- Dimensional Tolerance
- Seismic Resistance
- Economics of Savings

KAY2 Xenox TMT Bars

- Chemical Composition
- Mechanical Properties
- Savings in Weight & Cost



## Director's Message

Greetings friends!

Innovation at substantial infrastructure is the robust foundation for future prosperity. Our endeavor at KAY2 has always been to strengthen construction capabilities for a stronger and safer tomorrow. Owing to our business expertise, innovative approach, and groundbreaking technology, we now lead the way for a new vertical growth model in today's construction. Our internationally recognized manufacturing and quality processes, consistency in volumes, and assured timely deliveries have made us the most preferred and sought after brand by the structural engineers, architect, and construction companies globally.

Infused with innovation & automated technologies, and consistent with BIS standard quality, I present to you KAY2 Xenox, the Intelligent Steel designed to endure strength and perfection. KAY2 Xenox's better weldability, superior bendability, and higher elongation offers unmatched strength and makes it earthquake, corrosion, and fire-resistant. KAY2 Xenox is an avant-garde product that leverages the power of advanced technology and focuses on Smart Construction. This new age construction steel has

a mesh grip for a stronger steel cement bond. With 2.7 times higher bond strength, this advanced processed steel ensures a stronger and stable structure and proves that Safety is our most prioritized management value.

At KAY2 Steel, we are committed to produce the highest quality of steel following a path of excellence and make it cost-effective for the larger good. Our strong sense of aesthetic value, integrity, and reliability of our actions has earned the trust of our customers. We work with transparency and dedication and act cohesively towards building a steady relationship with our partners and clients across the globe. To achieve the highest possible standards, I ask for your sincere support for KAY2 Steel in pursuit of innovation to revolutionize the future.

Sincerely,  
(Sunil Agarwal)  
Director



XENOX



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OUR STRENGTH,  
YOUR SECURE  
FUTURE

**XENOX**

KAY2 Steel, since its inception in 2012, has demonstrated phenomenal advancement in manufacturing high-quality construction TMT bars. By incorporating world's leading technologies and manufacturing processes, KAY2 Steel has become the most trusted brand in the steel bar segment. We are transforming the landscape of India with our revolutionizing construction products and strategically defined business model.

Our vision to firmly place India on the global construction map is shaped by the commitment to benefit society and care for our employees. We offer high-quality products and services to our customers globally at an affordable price. Backed by cutting-edge technology and modern equipment, our team of experts drive the actionable insights into innovative solutions to create value for customers and instill brand confidence. The Company's advanced lab, modern equipments, trained technicians, and Quality Assurance Department work cohesively to monitor the processes and material to make it seismic-resistant and present the best of the Steel for our customers to use.

Our care and collaborative relationship with our partners and dedicated staff are based on trust and mutual respect for one other. The foundation of our success is based on the underlying business principles wherein we believe in the combined interests of shareholders, the dedication of employees, efforts of vendors, to offer better quality at reduced costs and higher efficiency through a continuous evaluation process. We continually strive to build eco-friendly construction and to create sustained value for everyone. As a socially responsible organization, we are always on a lookout to find innovative ways to improve lives, bring positive changes, and to conserve the environment.



# XENOX



The hexagonal structure has high bond energy making the molecule less reactive & more stable.



Proper splicing of the bars maintain the integrity of the structure when subjected to high shear & splitting stress.



Close ribbed design structure increases the strength to bear the overall weight.



The added strength & solidity is evident during high voltage seismic shocks

KAY2 XENOX

## STEEL WITH A DIFFERENCE

The Intelligent Steel

KAY2 Xenox is a new age construction steel TMT bar that has revolutionized the safety and quality standards in the industry. Made from the highest-quality steel, it conforms to the BIS standard and changes the way we look at infrastructure in today's time. This advanced processed steel, when embedded with concrete, gives excellent strength and durability to any construction.

Intelligent Steel draws its power from the Hexagonal Molecular Bonding, which is a result of innovative rib design. The compact unique rib design, when embedded with concrete, imparts desired strength to the construction and ensures a stronger and stable structure. The reinforced steel gives infinite strength to the entire infrastructure, which is evident when the structure suffers high-magnitude seismic shocks.

KAY2 Xenox spliced rib geometry pattern provides mechanical strength to the bar against the surrounding concrete and ensures that the reinforced TMT bar and concrete work together to transfer the stress between the two materials. This superior bond is present due to the chemical adhesion, friction, and mechanical interaction between reinforcing steel bars and surrounding concrete. Thus, Intelligent Steel uses its varying strength and features such as ductility, weldability, bendability at its disposal and contributes to sustainable construction.

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**XENOX**

# INNOVATION REVOLUTIONIZES THE FUTURE

KAY2 XENOX compact rib pattern offers a Hexagonal Molecular Bonding and adds longevity to the structure. The total of the internal angles of a hexagon is 720-degree meant for an all-round bonding with the cement to last any after effect of earthquake, corrosion and fire. Hexagonal Molecular Bonding has high bond energy compared to seismic energy. The unique pattern of KAY2 XENOX bar improves the development and splice strength of reinforced steel. This helps the reinforcing steel bar in any structure to stay immune to the damage during an earthquake. Also, Hexagonal Molecular Bonding decreases the corrosion rate in reinforced concrete with its innovative rib pattern and showcases an exceptional combination of Strength, Ductility & Bonding suitable for skyscraper construction.

Hexagonal Molecular Bonding

KAY2 XENOX

KAY2 XENOX





## Features of KAY2 XENOX TMT Bars

### Bond Strength

The Splicing Rib Design pattern of KAY2 XENOX TMT Bars offers 2.7 times higher bond strength compared to ordinary bars bond strength and are specially designed to ensure excellent bondage between the bar and the surrounding concrete. The strong compression and tension in reinforced concrete produces an everlasting bond and adds longevity to the structure.



### Superior Bendability

KAY2 XENOX TMT Bars have outstanding bending and re-bending properties without any occurrence of cracks. The tough outer surface and a ductile core ensures that the composite works efficiently and cracks are under control. This results in rebars with extremely high bendability offering shape to the perfect construction. These bars can be bent around mandrels much smaller than those specified in IS: 1786.

### Better Weldability

KAY2 XENOX TMT Bars offer superior weldability than conventional bars due to its low carbon equivalent. Its excellent formability and weldability absorbs seismic energy and increases safety. It can easily be butt-welded, or lap welded using ordinarily coated electrodes of similar strength. No pre-warming or post-heat treatment is necessary for manual arc welding either.

### Corrosion Resistance

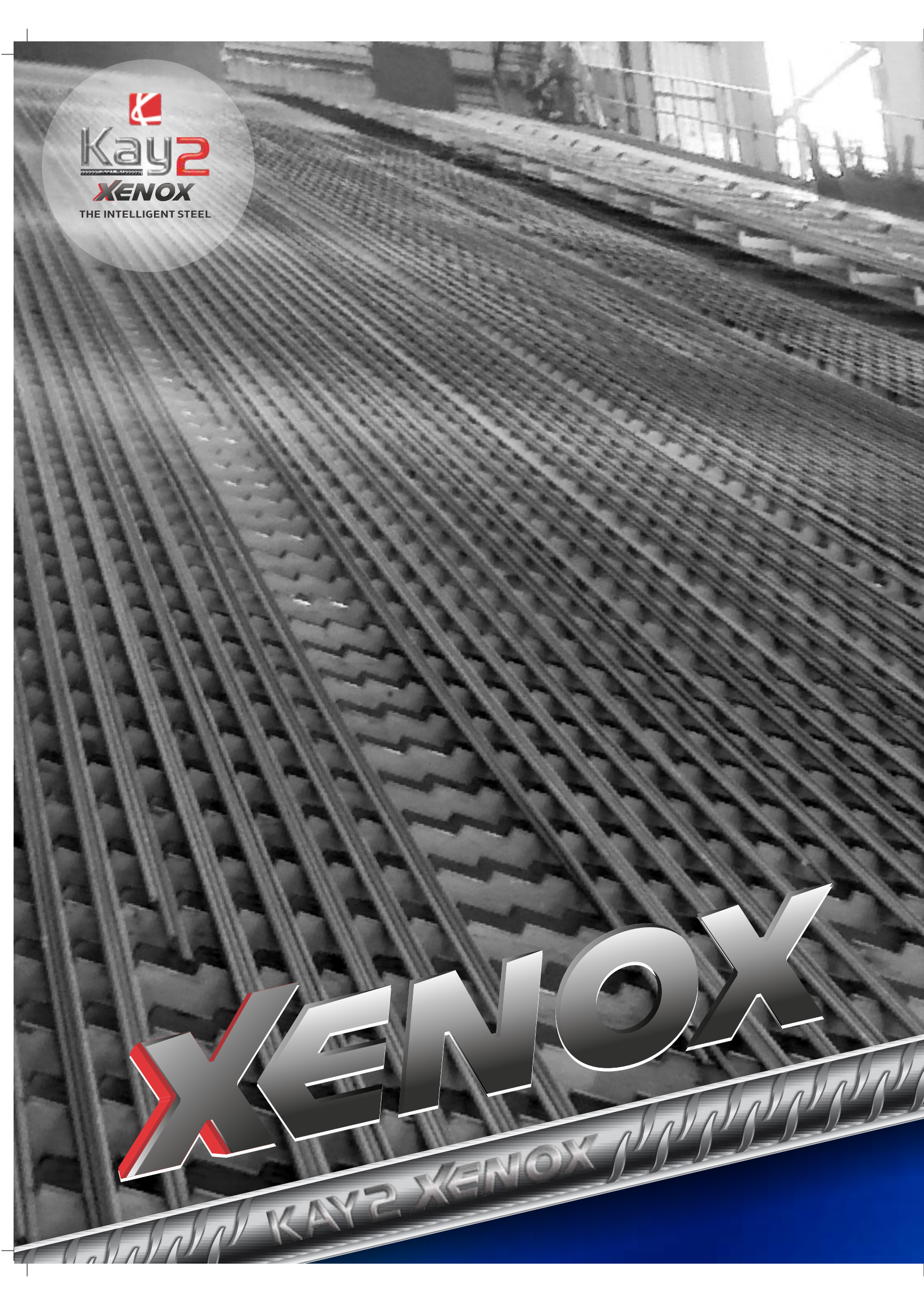
Corrosion of reinforcing bars depletes the service life of the concrete structure. KAY2 XENOX TMT Bars are designed and produced with the latest technology to protect reinforcing steel bars against corrosion from the high-alkalinity of pore water. The compact rib pattern (Hexagonal Molecular Bonding) provides better physical protection so that the corrosion rate decreases and increases the life of the structure.

# XENOX

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## High Temperature Resistance

At KAY2 Steel, we use standard materials while treating the steel with a high melting point to make it stable, durable, and reliable in the face of extreme temperatures. This allows KAY2 XENOX TMT Bars to retain more than 80% of its ambient temperature yield strength at 300 degrees Celsius and 40% at 500 degrees Celsius.

## Dimensional Tolerance

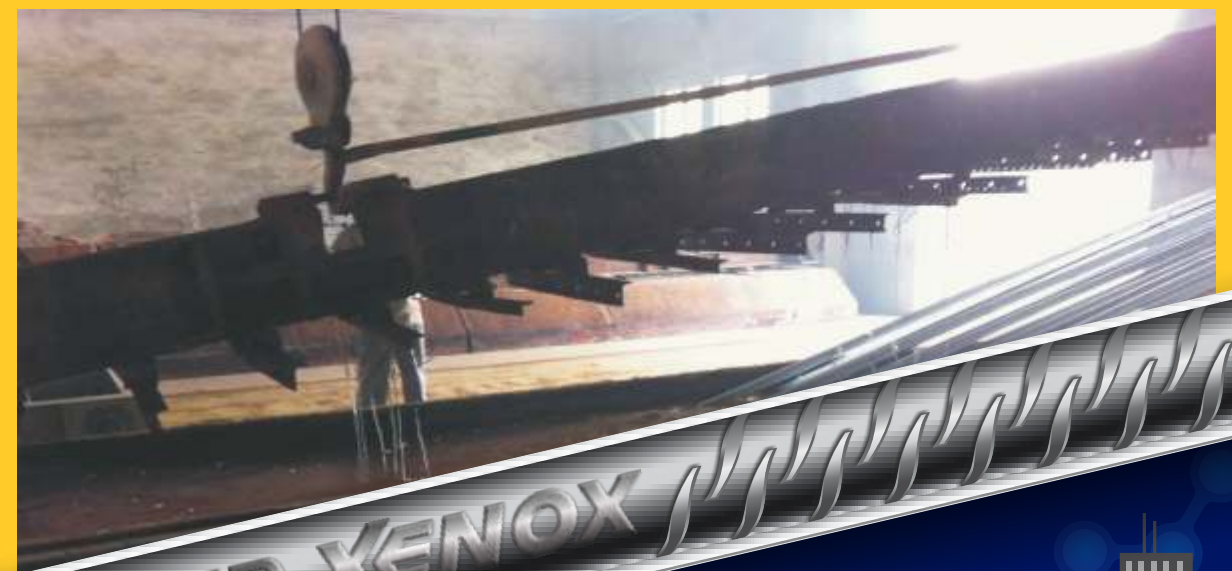
Our Quality Control measures include measurement of chemical and mechanical properties and close dimensional tolerances for a superior quality product. KAY2 XENOX TMT BARS are supplied with section weight lower than the nominal, within the BIS specification. They are guaranteed to be lesser than the nominal mass & less than 1% heavy to provide various design advantages and application benefits.

## Seismic Resistance

KAY2 XENOX TMT Bars reveal superior seismic resistance properties during simulated earthquake conditions induced on reinforced concrete, beam, column and joints to evaluate performance under repeated reverse-loading with inelastic strains. The advanced processed steel has a mesh grip for a stronger steel cement bond. Its superior physical and chemical properties soften the earthquake generated forces acting upon it and escape the deformation and damage.

## Economics of Savings

KAY2 XENOX TMT Bars are new generation rebars with Hexagonal Molecular Bonding and usable yield stress which is above that of Fe-500 grade of IS:1786. Hence, their use based on the working stress or limit state method as per IS:456, would result in substantial savings in steel costs as compared to a typical T-Beam floor built with Mild Steel Bars.



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### Chemical Composition of KAY2 XENOX TMT Bars

S.No	CONSTITUENTS	MAXIMUM					
		IS:1786	KAY2 XENOX	IS:1786	KAY2 XENOX	IS:1786	KAY2 XENOX
		Fe-500	Fe-500	Fe-500D	Fe-500D	Fe-550	Fe-550
1	Carbon%	0.30	0.25	0.25	0.23	0.30	0.25
2	Sulphur%	0.055	0.050	0.040	0.035	0.055	0.050
3	Phosphorus%	0.055	0.050	0.040	0.035	0.055	0.050
4	S+P%	0.105	0.100	0.075	0.070	0.100	0.095
5	Carbon Equivalent%	—	—	0.50	0.40	—	—
6	Nitrogen%	0.012	0.010	0.012	0.010	0.012	0.010

\*As contained in 90% of heat

### Mechanical Properties of KAY2 XENOX TMT Bars

S.No	Properties	Unit	IS: 1786 Fe-500	KAY2 XENOX (Fe-500)	IS: 1786 Fe-500D	KAY2 XENOX (Fe-500D)	IS: 1786 Fe-550	KAY2 XENOX (Fe-550)
1	Yield Stress (Min.)	N/mm <sup>2</sup>	500	530.0	500.0	530.0	550.0	565.0
2	Tensile Strength (Min.)	N/mm <sup>2</sup>	545	600.0	565.0	610.0	585.0	610.0
3	TS/YS Ratio	Ratio	≥ 1.08	≥ 1.10	≥ 1.10	≥ 1.12	≥ 1.06	≥ 1.08
4	Elongation (Min.)	%	12	16.0	16.0	18.0	10.0	14.0
5	Uniform Elongation (Min.)	%	—	—	5.0	6.0	—	—
6	Bend Test	Mandrel dia (in mm), ø-dia of bar	4ø	3ø	3ø	2ø	5ø	4ø
	a)Upto & Including 20 mm							
7	b)Over 20 mm	Mandrel dia (in mm), ø-dia of bar	5ø	4ø	4ø	3ø	6ø	5ø
	Re-bent Test							
	a) Upto & Including 10 mm		5ø	4ø	4ø	3ø	7ø	6ø
	b) Over 10 mm							
			7ø	6ø	6ø	5ø	9ø	8ø

\*As contained in 90% of heat

### Savings in Weight & Cost

Characteristics	Ordinary TMT	KAY2 XENOX TMT		
	Fe-415	Fe-415	Fe-500	Fe-550
Design/Grade/Y.S	415 N/mm <sup>2</sup>	450 N/mm <sup>2</sup>	530 N/mm <sup>2</sup>	565 N/mm <sup>2</sup>
Quantity	1.0 MT	0.92 MT	0.78 MT	0.73 MT
Percentage of saving weight over Fe-415		8.0%	22%	27%
Saving in cost relative to Fe-415/MT.	If rates are 40,000/-PMT	3200/-	8800/-	10,800/-

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