



*Reinforcing  
Higher Aspiration*



**KAMDHENU ISPAT LIMITED**

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## *Chairman's Message*

*“ We have a dream, a dream to create a world with limitless possibilities for all. We strive to create a dimension so the finer things in life reach to every entity. We possess an indomitable spirit to foster opportunities for success and share its rewards with our consumers and associates. With every diversified business foray we make, we step closer to fulfill these cherished dreams.*

*I thank you all for walking along to prospects, prosperity and progress. ”*



## Kamdhenu; turning good wishes in to Realities

Kamdhenu Group is a future-led, diversified group. Since inception, the group has been growing with commendable rate to achieve organic expansion as well as verticals diversification. The Group represents a creditable market size in a number of product categories including TMT/HSD Bars, Structural Steel, Wirebond, Paints, Plywood and real estate.

We believe that this growth has been driven principally by the Group's strategic skills, customer focus, product ranges, innovativeness, financial controls and extensive staff training. We aim to service a much broader segment of the markets and contribute towards stronger infrastructures, beautiful landscapes and Public good.

Driving growth with greater consumer satisfaction on the basis of the core values of trust, transparency and integrity is our guiding principle; thereby creating a better world for ourselves and everyone we share it with.



## Kamdhenu Ispat Ltd.

Kamdhenu Ispat Limited, the flagship company of the group, is the largest manufacturer of international quality steel bars in India; the first company to be accorded with prestigious ISO 9001:2000 certification by ABN Quality Evaluation System USA and ISO 9002 by NQA, QSR and Dutch Council of Quality. KIL manufactures reinforced steel bars (TMT& HSD ) under the brand name - "KAMDHENU TMT" - a popular and trusted name, synonymous with strength and durability, and enjoys the highest brand recall in the construction industry.

KIL believes in revolution, not in mere evolution. This is evident in its ambitious growth plan through integration of decentralized production bases by strategic alliances the first company to realize the potential of franchised manufacturing and acquisition of fragmented manufacturing units at regional levels all over the country. KIL provides cutting-edge technological processes to these units, ensures strict adherence to quality management systems and supports them with an effective distribution network. Under this strategic expansion, KIL has under its aegis a total of 51 manufacturing units spread across the nation.

KIL group plants manufacture Thermo-Mechanically-Treated (TMT) bars, the latest technology with rolling time of just 18 seconds against 52 seconds of others. The plants are fully automated for hot rolling and precision techniques and incorporated proper quenching processes for TMT technology.

Yet another  
TECHNOLOGICAL INNOVATION  
**KAMDHENU 500-D TMT**



**STRENGTH THAT EMERGES**



**KAMDHENU 500D**



## Our Product Portfolio

### KAMDHENU TMT

TMT (Thermo Mechanical Treated Bars) are the most popular reinforcement bars in the world. High Speed Latest Technology TMT Grade Fe – 415 & Fe-500 has the best strength with mildness, better corrosion resistance, better bond strength with cement, excellent ductility, easy work ability at site better result than BIS standards.

### FEATURES OF TMT BARS

- Excellent weldability without loss of strength at welded joints
- Better ductility and malleability
- Earthquake resistant
- High Thermal Resistance
- Significant savings in cost of steel



## Kamdhenu 500-D TMT

Born out of innovation Kamdhenu 500-D aims to eliminate the existing impurities in rebars. The presence of Sulphur and Phosphorus is harmful and makes a rebar vulnerable to cracking. The excess of Sulphur can lead to increasing levels of hot shortness making the rebar vulnerable to cracking under extreme hot conditions and the excess of Phosphorus leads to increasing levels of cold shortness making it vulnerable to cracking under extreme cold conditions. Kamdhenu 500-D is totally Sulphur and Phosphorus controlled and reduces the combined level of these impurities up to 0.075% as per the latest BIS specifications.

### PROCESS OF MANUFACTURING

With its most advanced and highly equipped production franchisee units, Kamdhenu manufactures HSD/ TMT Bars. It uses the latest and most sophisticated Technology to manufacture high quality Kamdhenu TMT Bars. This Technology is considered best in business for production of high quality TMT Bars since the technology uses low cost raw materials against costly alloy elements. The technology is formulated in three steps namely Quenching Stage, Tempering Stage and Cooling Stage. Manufactured under the best quality control parameters these bars give high ductility, bendability and weldability and are fully-equipped to resist earthquakes of high impact. Moreover, HSD Bars are manufactured using the most advanced technology.



## TMT Manufacturing Process

This process is widely accepted as the best process for production of high quality rebars since the technology uses low cost raw materials against costly alloy elements like Vanadium and Niobium, but results in the same high mechanical properties (DIN 488 IVS, BS 4449:97 etc.) ensuring excellent weldability, ductility and bendability a notable saving in alloy cost per ton.

The process involves heating of steel billets in a Reheating Furnace and rolling them through a sequence of rolling stands which progressively reduce the billet to the final size and shape of the reinforcing bar. As the bars leave the final mill stand, they are submitted to a special heat treatment involving three stages.



Tempered  
Martensite



Ferrite Pearlite

### Quenching Stage

The first stage consists of a water spray cooling treatment to the hot rolled bars. The effectiveness of the water spraying equipment at this stage is critical as to rapidly harden the surface layer, faster than the critical rate, to form the martensite while core remains austenite.

### Tempering Stage

In the second stage the bar leaves the water quenching line and is exposed to air. The heat flux from the still hot core reheats the surface by conduction thus self-tempering the surface to a structure called "Tempered Martensite" which is strong and tough. The core is still austenitic this stage.

### Cooling Stage

The third stage of "Atmospheric Cooling" occurs on the cooling bed, where the austenitic core is transformed to a ductile ferrite pearlite core. The final structure consists of a combination of a strong outer layer of tempered martensite and a ductile core of ferrite-pearlite.



## Chemical Composition Of Kamdhenu TMT Bars

## Features Of Kamdhenu TMT Bars

Kamdhenu TMT Bars offers a blend of strength and ductility, far in excess of the minimum limits of yield stress specified in the IS:1786 standards. The typical values are as high as 450 N/mm<sup>2</sup> though the standard specifies 415 N/mm<sup>2</sup> as normally used by architects. The typical value of ductility as measured by elongation is 18% minimum as against the standard value of 14.5% minimum. Undoubtedly, this ductility guarantees higher levels of safety.

Tests on KAMDHENU TMT Bars Fe-415, Fe-415D, Fe-500 and Fe-500D grade bars at the GOI Ministry of Steel's National Institute of Secondary Steel Technology, Punjab, revealed that these bars have higher stress and corrosion resistance, lesser crack-width-in-concrete compared to CTD bars. KAMDHENU TMT Bars result in a 12% saving in axially loaded columns, 8% in universal bending of columns and 3%-7% in doubly reinforced beams.

S.No.	CONSTITUENT	PERCENT (MAXIMUM)							
		IS: 1786 Fe-415	Kamdhenu Fe-415K	IS: 1786 Fe-415D	Kamdhenu Fe-415DK	IS: 1786 FE-500	Kamdhenu Fe-500K	IS: 1786 Fe-500D	Kamdhenu Fe-500DK
1.	Carbon	0.30	0.30	0.25	0.24	0.30	0.25	0.25	0.23
2.	Sulphur	0.060	0.060	0.045	0.040	0.055	0.050	0.040	0.035
3.	Phosphorous	0.060	0.060	0.045	0.040	0.055	0.050	0.040	0.035
4.	Sulphur+Phosphorous	0.110	0.105	0.085	0.080	0.105	0.100	0.075	0.070
5.	Carbon Equivalent	0.42	0.40	0.42	0.38	0.42	0.38	0.42	0.38



## Mechanical Properties Of Kamdhenu TMT Bars

S.No.	PROPERTIES		UNIT	IS: 1786 Fe-415	Kamdhenu Fe-415K	IS: 1786 Fe-415D	Kamdhenu Fe-415DK	IS: 1786 Fe-500	Kamdhenu Fe-500K	IS: 1786 Fe-500D	Kamdhenu Fe-500DK
1.	Yield Stress (Min.)		N/mm <sup>2</sup>	415.0	450.0	415.0	450.0	500.0	530.0	500.0	530.0
2.	TS/YS Ratio		N/mm <sup>2</sup>	≥ 1.1, but TS not less than 485.0	≥ 1.12, but TS not less than 520.0	≥ 1.12, but TS not less than 500.0	≥ 1.14, but TS not less than 530.0	≥ 1.08, but TS not less than 545.0	≥ 1.10, but TS not less than 585.0	≥ 1.10, but TS not less than 565.0	≥ 1.12, but TS not less than 600.0
3.	Elongation on Guage Length 5.65 √A (Min.)		%	14.5	18.0	18.0	20.0	12.0	16.0	16.0	18.0
4.	Total Elongation at Max. force on Guage Length 5.65 √A (Min.)		%	--	--	5.0	6.0	--	--	5.0	6.0
5.	Bend	Up to & including 20mm	--	3Φ	2Φ	2Φ	2Φ	4Φ	3Φ	3Φ	2Φ
	Test	Over 20mm	--	4Φ	3Φ	3Φ	3Φ	5Φ	4Φ	4Φ	3Φ
6.	Rebend	Up to & including 10mm	--	5Φ	4Φ	4Φ	3Φ	5Φ	4Φ	4Φ	3Φ
	Test	Over 10mm	--	7Φ	6Φ	6Φ	5Φ	7Φ	6Φ	6Φ	5Φ

## Cost Saving Comparison To Kamdhenu Vs Ordinary TMT

PARTICULARS	ORDINARY TMT	KAMDHENU TMT	
Grade	Fe- 415	Fe- 415	Fe- 500
Design	415	450	530
Quantity (MT)	1.0	0.92	0.78
Saving (%)	--	8	22
Cost Saving/MT in (Rs.)	--	3360*	9290*

\*Steel Rate - Rs. 42000/MT





#### Bond Strength

The ribbed pattern of KAMDHENU TMT bars has been specially designed to ensure excellent bondage between the bar and the surrounding concrete. While specifications stipulate a 40% higher bond strength than that of Mild Steel Bars, KAMDHENU TMT Bars boasts 100%-200% higher values.



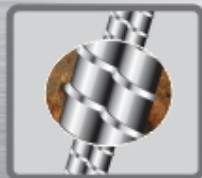
#### Bending & Re-bending

KAMDHENU TMT Bars have outstanding bending properties and bend the re-bend without cracking. The tough outer surface and a ductile core result in a rebar with extremely high bendability. The bars can be bent around mandrels much smaller than those specified in IS: 1599.



#### Weldability

KAMDHENU TMT Bars offers superior weldability than conventional Bars due to its low carbon equivalent. They can be easily butt-welded or lap-welded using ordinary coated electrodes of similar strength. No pre-warming or post-heat treatment is necessary in manual arc welding either.



#### Corrosion Resistance

KAMDHENU TMT Bars are produced by thermo-mechanical treatment and not by cold twisting therefore eliminating torsion residual stress in the bars which tender superior corrosion resistance.



#### High Temperature Resistance

KAMDHENU TMT Bars retain more than 80% of its ambient temperature yield strength at 300° C & 40% at 500° C.

#### Dimensional Tolerances

KAMDHENU TMT Bars are supplied with section weight lower than the nominal. They are guaranteed to be lesser than the nominal weight and less than 1% heavy.



#### Seismic Resistance Properties

KAMDHENU TMT Bars revealed superior seismic resistance properties during simulated earthquake conditions on reinforced concrete beam column joints to evaluate performance under repeated reverse-loading with inelastic strains. The energy dissipation was found to be almost the same for each cycle indicating uniform ductility till failure.

#### Economics of Savings

KAMDHENU TMT Bars are new generation rebars with usable yield stress in excess of that for Fe-415 Grade of IS:1786. Hence, their use on the basis of either the working stress or limit state method as per IS: 456 - 1978, would result in substantial savings in steel costs as compared to a typical T-beam floor built with Mild Steel Bars.



## Applications

**Geographical Application:** Kamdhenu TMTs are highly applicable in earthquake prone areas. Earthquake is a prominent threat to every construction. Kamdhenu TMTs are highly efficient in providing earthquake resistant abilities to a structure. Be it a small building, a house or community infrastructure, Kamdhenu TMTs improve their earthquake resistance and adds extra strength.

**Business Verticles:** The exceptional qualities of Kamdhenu TMTs make them applicable in all kinds of construction. No matter how big or small a construction is, Kamdhenu TMTs find application in every form. Highly efficient for bridges, dams, flyovers, high rise buildings and metro railway tracks, these TMTs are also a preferred choice of consumers when it comes to housing construction.



# 2 KAA DUM

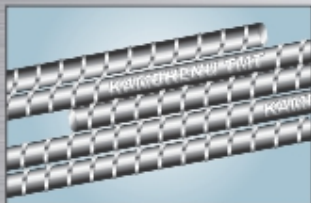
- DOUBLE RIB
- DOUBLE STRENGTH
- DOUBLE SAFETY



**KAMDHENU**  
**SS 10000**

## One Roof Solutions

### Kamdhenu TMT/HSD Bars



Kamdhenu Ispat Ltd. Began its journey in the steel sector with manufacturing of TMT/HSD rebars. Thanks to its quality measures and a high degree of workability the Kamdhenu Brand today has formed a rich and loyal customer base.

### Kamdhenu Structural Steel



Kamdhenu Ispat Ltd. is manufacturing a host of structural steel products, being massively used in various construction works. The company is today, manufacturing angles, channels, beams and flats that are widely used in construction works.

### Kamdhenu Wirebond



Manufactured under a strict quality regimen using the advanced technology, Kamdhenu wirebond has proven its strength and flexibility to take on constructions of any proportions.

### Kamdhenu Paints



Kamdhenu Paints is the fastest growing Paint Brand of India in decorative segment, manufacturing and supplying the most elaborate range of Paint Products catering needs and preferences of every segment of consumers.

### Kamdhenu Homz



Strategically embarking into India's booming real estate sector and with its tagline, 'Line your dreams', Kamdhenu Homz has gone on to become one of the most sought after housing developing bodies.

### Kamdhenu Plywood



Kamdhenu Plywood is one of the most trusted brand in the Indian Market. High quality, anti-termite & weather proof properties and excellent workability are some key features of Kamdhenu plywood which propelled the brand towards sizable market share.