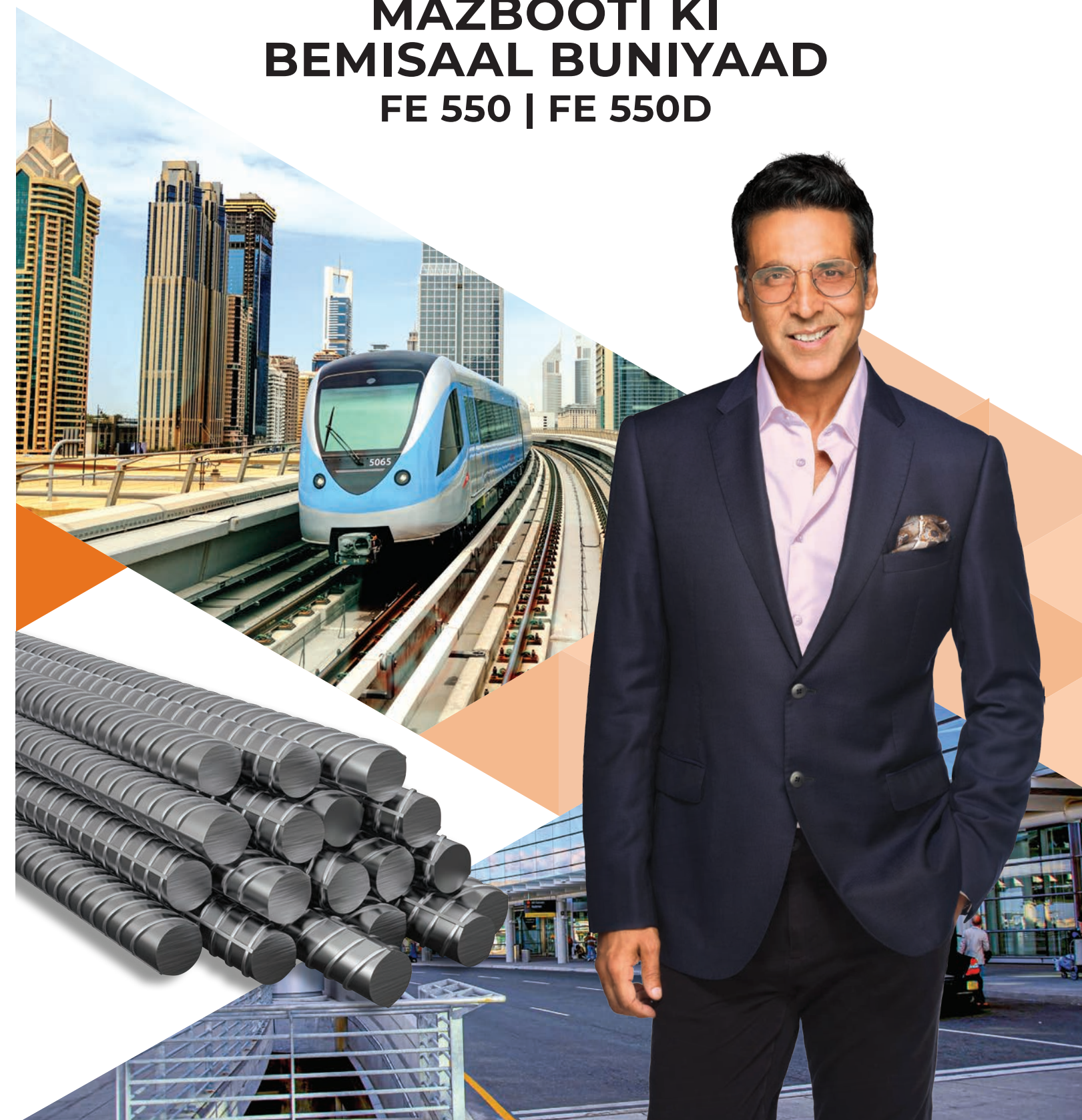




MAZBOOTI KI BEMISAAL BUNIYAAD FE 550 | FE 550D



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SHAPING A STRONGER WORLD ON A LEGACY OF EXCELLENCE

WELCOME TO A FUTURE BUILT ON STRENGTH.

Introducing APL Apollo SG TMT Bars – a remarkable breakthrough in TMT Rebar construction brought to you by India's leading steel manufacturer APL Apollo.

These TMT bars are setting new benchmarks of excellence in the world of steel construction with their enhanced strength, optimized chemistry, exceptional attributes, cleaner steel, and state-of-the-art technology.

These bars exhibit exceptional characteristics that act as a strong deterrent to bending, cracking and corrosion, and come together to offer a premium product with unprecedented ductility, quality, safety and longevity. They play a pivotal role in establishing safer and more robust foundations, from towering skyscrapers to inviting residential complexes.

UNPARALLELED ADVANTAGES MAKING A REAL DIFFERENCE

According to recent findings, more than 50% of the land in India is vulnerable to earthquakes. Therefore, the use of TMT bars is crucial to tackle the challenges of nature.

APL Apollo SG TMT Bars offers high yield stress, shock resistance and elongation properties to ensure flexibility against tremors and protection against rust, thereby creating sturdy and durable structures that can withstand not only the test of nature but also of time. Undergoing thermo-mechanical treatment makes it extremely ductile and gives it high tensile strength, so it can cater to every shape. Its lightweight properties makes it easy to transport, making it ideal for high-rise buildings, bridges, dams, and other reinforced concrete constructions.



UNIQUE ADVANTAGES:



TENSILE STRENGTH

The yield and tensile strength of these bars surpass those of the regular bars making them the perfect choice for extensive construction projects such as towers, dams, flyovers, and more.



FLEXIBILITY AND BENDABILITY

Their remarkable flexibility contributes to their ability to withstand intense seismic events. They have a lower bend diameter compared to specified bend diameters as per IS 1786-2008, Grade D specifications which results in less effort while bending.



ECONOMICAL

They are extremely cost-effective as they require fewer bars, bringing down the overall cost of construction significantly.



WELDABILITY

They are widely recognized for their exceptional weldability characteristics.



CLEANER AND DURABLE

They contain reduced levels of sulfur, phosphorus, and carbon, enhancing resilience to varying temperature conditions and ultimately bolstering the durability of the structure.



CORROSION RESISTANCE

They have the capability to withstand any kind of corrosion that may occur due to changing weather conditions.



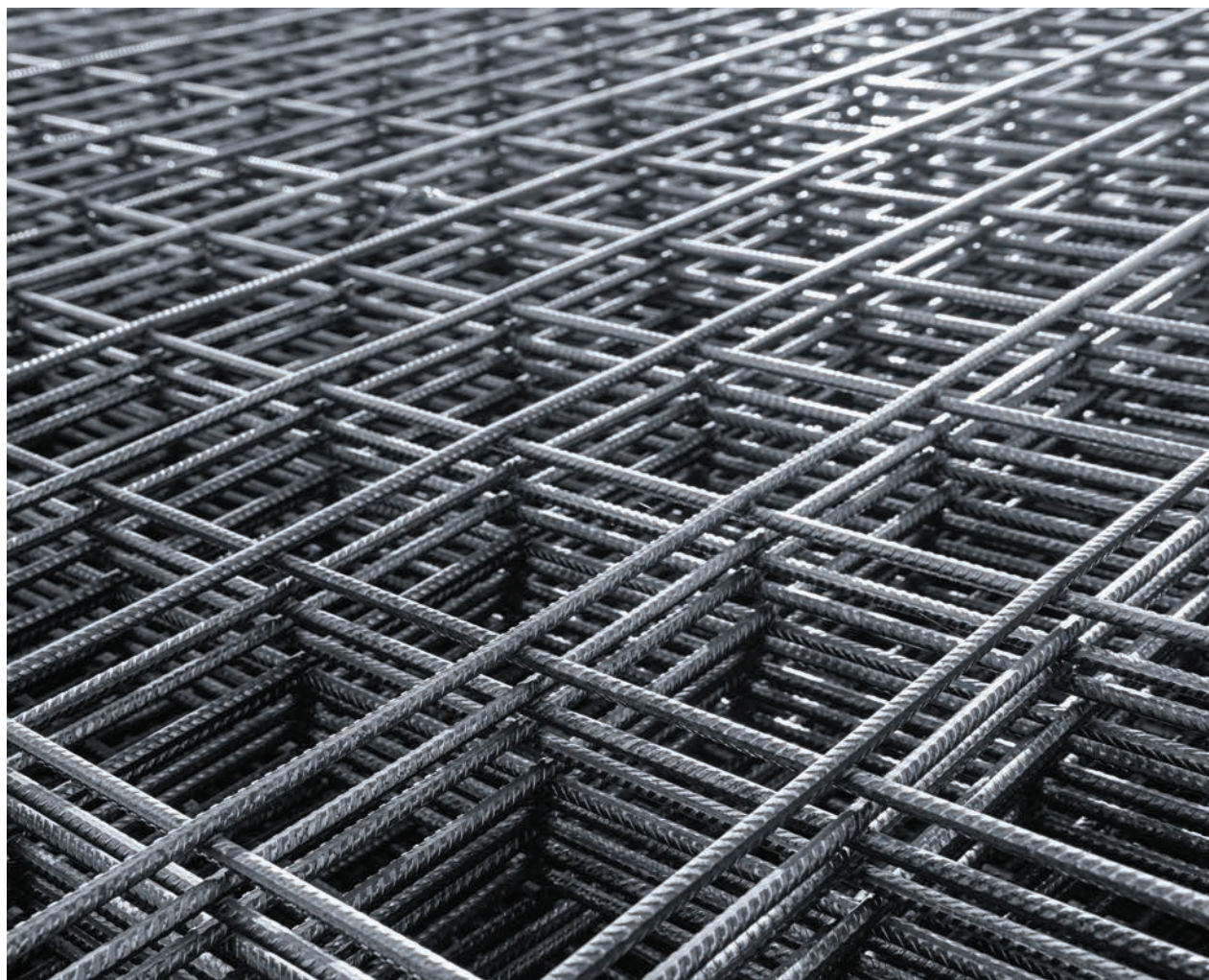
BIGGER SAVINGS

TMT Bars such as the ISI Fe 500 often requires a lot of pieces to build a strong foundational support for concrete structures, which means higher overall cost of construction. However, this is not the case with APL Apollo SG TMT Bars. They offer greater load bearing capacity while maintaining the same ductility as per BIS 1786. Better load bearing capacity of 550/550D implies lesser number of rebars required. It also means using TMT rebars with lesser diameter, ensuring less congestion. Steel TMT rebars are used in every RCC construction, whether for residential or commercial use, and account for around 25% of the total cost. You can not only make your construction stronger and long-lasting but also make a fortune in savings.

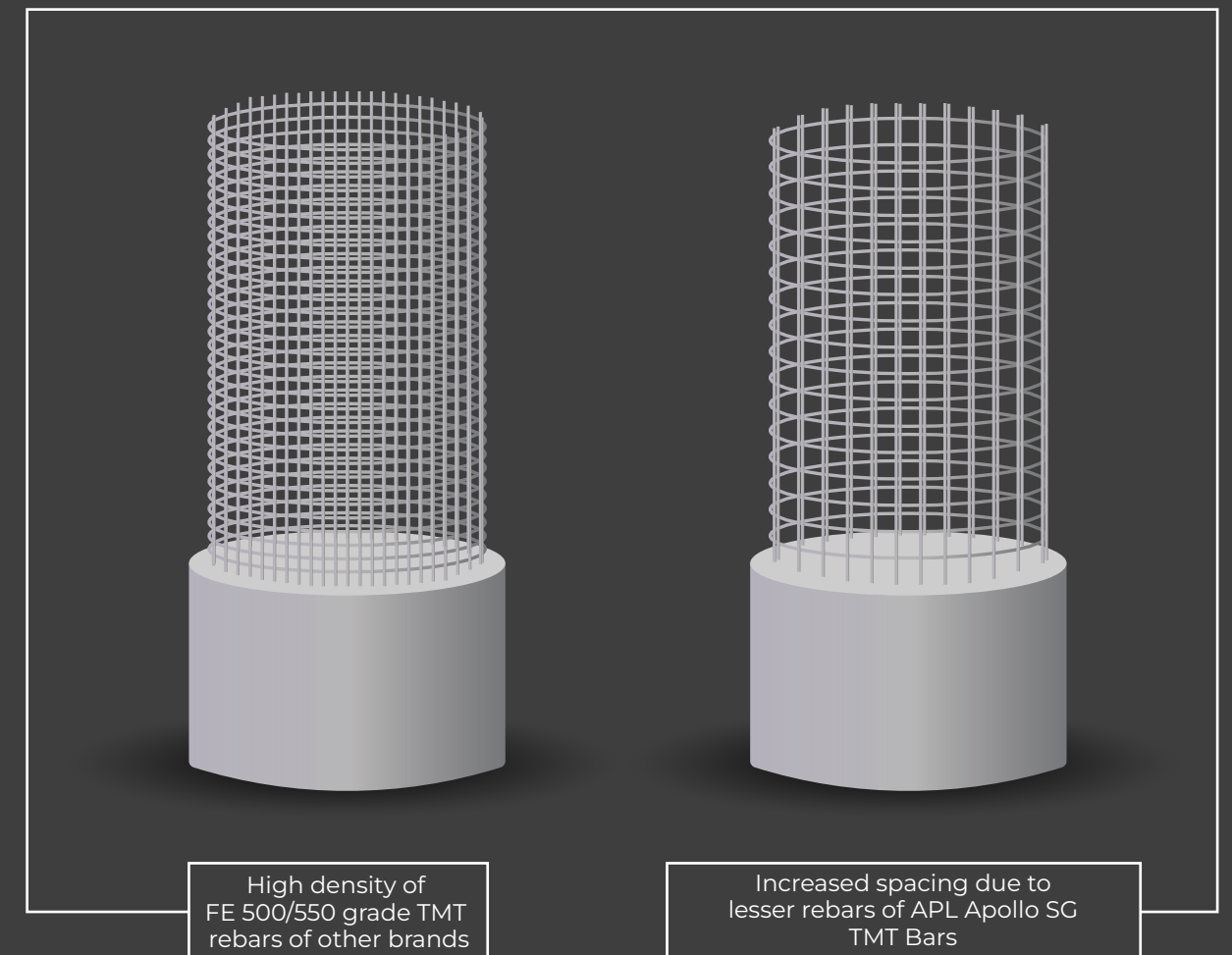
APL Apollo SG TMT Bars are available in following sizes and grades conforming to IS 1786:2008.

Sizes: 8 mm to 32 mm

Grade: FE 550 and FE 550D



GREATER THE SPACING, LESSER THE REBARS REQUIRED.



ADVANTAGES:

- | | |
|---------------------------|-------------------------|
| ■ Lower steel consumption | ■ Lower transport costs |
| ■ Greater on-site savings | ■ Reduced labour costs |
| ■ Speedy construction | |

APL Apollo SG TMT Bars ensure up to 20% savings on the cost of construction. It is observed that the high density of ISI Fe 500 or 550 often leads to an increase in number of pieces required for the foundational support of concrete structures. However, with APL Apollo SG TMT Bars, lesser rebars are required for concrete structure due to increased spacing.

ENHANCED DUCTILITY

In the event of an earthquake, when structural integrity is in question, the unbreakable ductility of APL Apollo SG TMT Bars becomes the ultimate answer. The flexible ferrite-pearlite coating of these TMT bars peaks out when it comes to shock absorption during unforeseen seismic events. This enhances the tensile strength of the structure to a significant extent which results in better weldability.

Properties	BIS 1786	United Kingdom B.S. 4449/2005		Australia/New Zealand AS NZS 4671/2001		APL Apollo SG TMT Bars
YS Min. MPa	Fe 500 500	500B * 500	500C * 500	500N 500	500E 500	Fe-500SD * 560
YS Max. Mpa	N.S.	650	650	650	600	640
UTS Min.	8% higher than YS	8% higher than YS	15% higher than YS	8% higher than YS	15% higher than YS	15% higher than YS
UTS Max.	N.S.	N.S.	N.S.	N.S.	40% higher than YS	N.S.
UTS/YS Min.	1.08	1.08	1.15	1.08	1.15	1.15
% of total elongation	12.0 Min	N.S.	N.S.	N.S.	N.S.	18.0 Min
% of total elongation upto UTS	N.S.	5.0 Min	7.5 Min	5.0 Min	10.0 Min	8.0 Min
Application	General	General	E.Q Zone	General	E.Q Zone	General

OUTSTANDING STRENGTH

By changing its microstructure, steel can retain a variety of properties depending on its chemical composition and the type of thermal treatment it undergoes. The atmospheric cooling leads to a strong outer layer and a soft inner core, which significantly enhances the stability of the bar. This intricate process delivers exceptional tensile strength, greater elongation and a notable reduction in the weight of steel, and the ribbed design of the bar allows for a stronger bond with cement or concrete.

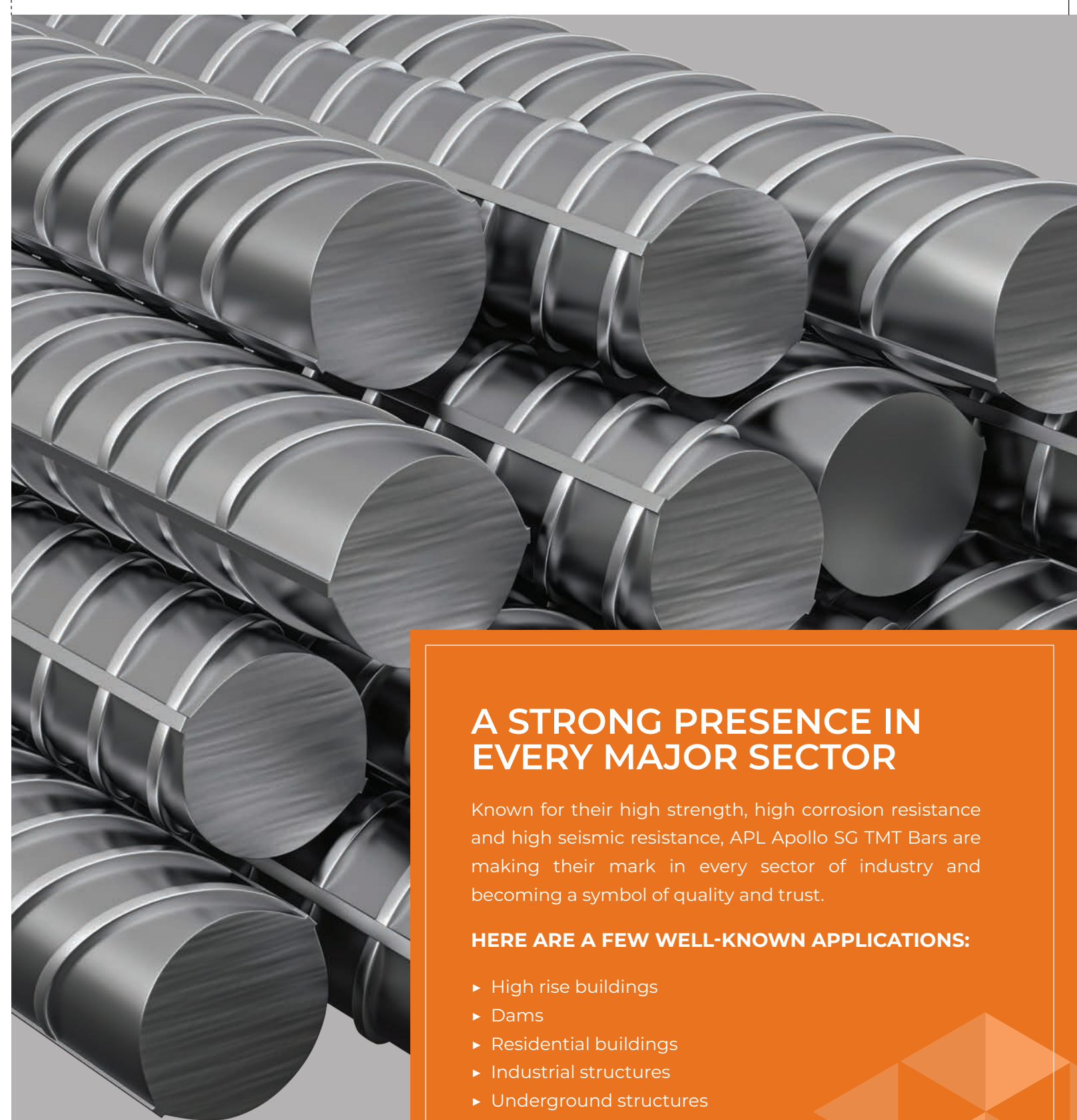


A STRONG PRESENCE IN EVERY MAJOR SECTOR

Known for their high strength, high corrosion resistance and high seismic resistance, APL Apollo SG TMT Bars are making their mark in every sector of industry and becoming a symbol of quality and trust.

HERE ARE A FEW WELL-KNOWN APPLICATIONS:

- ▶ High rise buildings
- ▶ Dams
- ▶ Residential buildings
- ▶ Industrial structures
- ▶ Underground structures
- ▶ Coastal bridges
- ▶ Nuclear power plants
- ▶ Defence projects
- ▶ Expressways
- ▶ Roads, bridges and flyovers
- ▶ Airports and railways
- ▶ Ports and metro



APPLICATIONS



HIGH RISE BUILDINGS



DAMS



COASTAL BRIDGES



NUCLEAR POWER PLANTS



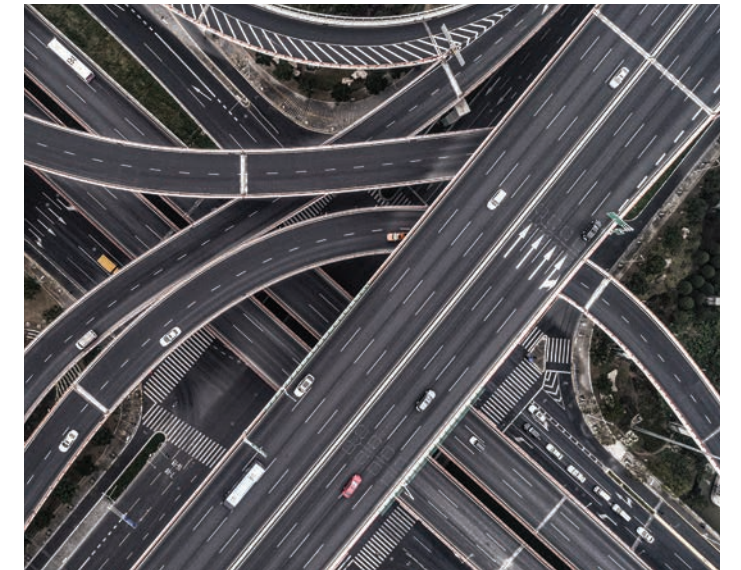
RESIDENTIAL BUILDINGS



INDUSTRIAL STRUCTURE



EXPRESSWAY



ROADS, BRIDGES AND FLYOVERS



UNDERGROUND STRUCTURE



RAILWAYS

CHEMICAL & MECHANICAL PROPERTIES

CHEMICAL PROPERTIES

Element (%)	IS 1786:2008		APL Apollo SG TMT	
	Grade Fe 550	Grade Fe 550D	Grade Fe 550	Grade Fe 550D
Carbon (max)	0.30	0.25	0.16-0.23	0.16-0.22
Sulphur (max)	0.055	0.040	0.040	0.035
Phosphorus (p) (max)	0.055	0.040	0.050	0.035
S & P (max)	0.100	0.075	0.090	0.070
Manganese (min)	-	-	0.60	0.65

MECHANICAL PROPERTIES

Element (%)	IS 1786:2008		APL Apollo SG TMT	
	Grade Fe 550	Grade Fe 550D	Grade Fe 550	Grade Fe 550D
Yield Strength/0.2% Proof Strength (Min, N/mm ²)	550	550	570-620	570-620
UTS Ultimate Tensile Strength (Min, N/mm ²)	585	600	650-750	670-770
% Elongation	10	14.5	15-20	16-24
UTS/YS Ratio	1.06	1.08	1.12-1.20	1.15-1.22

WEIGHT TOLERANCE

Size of bar (mm)	Cross Sectional Area (mm ²)	IS 1786:2008			APL Apollo SG TMT	
		I.S. Lower Limit	I.S. Standard Limit	I.S. Upper Limit	Per Meter Weight (Kg)	Weight/Bar
8 mm	50.3	0.367	0.395	0.423	0.375-0.405	4.68
10 mm	78.6	0.574	0.617	0.66	0.580-0.620	7.2
12 mm	113.1	0.844	0.888	0.932	0.850-0.900	10.5
16 mm	201.2	1.501	1.58	1.659	1.520-1.600	18.7
20 mm	314.3	2.396	2.47	2.544	2.421-2.519	29.53
25 mm	491.1	3.735	3.85	3.966	3.773-3.927	46.2
32 mm	804.6	6.121	6.31	6.499	6.200-6.373	75.6

COMPARITIVE SUMMARY FOR SLABS, COLUMNS AND BEAMS USING FE 415, FE 500 AND FE 550D

SLAB					
Combinations	Designed in Fe 415	Designed in Fe 500	Designed in Fe 550	Saving from 415 to 550	Saving from 415 to 550
3mx3m slab (125mm thick)	56kg	49kg	45kg	19%	8%
Reinforcement	6mm at spacing of 200mm	8mm at spacing of 225mm	8mm at spacing of 250mm		
4mx4m slab (125mm thick)	100kg	92kg	75kg	22%	15%
Reinforcement	8mm at spacing of 185mm	8mm at spacing of 200mm	8mm at spacing of 250mm		
5mx5m slab (125mm thick)	181kg	156kg	130kg	15%	16%
Reinforcement	8mm at spacing of 175mm	8mm at spacing of 185mm	8mm at spacing of 225mm		
Average Cost Saving Up To				19%	13%

COLUMN					
Size	Designed in Fe 415	Designed in Fe 500	Designed in Fe 550	Saving from 415 to 550	Saving from 500 to 550
230x350	45kg	38kg	35kg	22%	8%
Reinforcement	4-20mm+4-12mm	8-16mm	4-16mm+4-12mm		
230x450	55kg	48kg	43kg	25%	10%
Reinforcement	4-20mm+6-12mm	10-16mm	6-16mm+2-12mm		
230x600	88kg	72kg	67kg	23%	7%
Reinforcement	12-20mm	8-20mm+4-16mm	4-20mm+6-16mm		
300x350	58kg	48kg	44kg	24%	8%
Reinforcement	4-20mm+6-16mm	10-16mm	8-16mm+2-12mm		
300x450	83kg	72kg	67kg	19%	7%
Reinforcement	10-20mm+2-16mm	5-20mm+6-16mm	4-20mm+6-16mm		
300x600	113kg	103kg	93kg	17%	9%
Reinforcement	6-25mm+6-20mm	14-20mm	10-20mm+4-16mm		
Average Cost Saving upto				22%	8%



BEAM				
Designed in Fe 415	Designed in Fe 500	Designed in Fe 550/550D	Saving from 415 to 550/550D	Saving from 500 to 550/550D
28kg 6-16dia	26kg 4-16dia + 2-12dia	22kg 2-16dia + 4-12dia	21%	15%
52kg 4-20dia + 2-16dia	48kg 4- 16dia + 2-20di	40kg 6-16dia	23%	16%
60kg 3-20dia + 3-16dia	53kg 2-20dia+3-16dia+1-12dia	46kg 6-16dia	23%	13%
26kg 4-16dia + 2-12dia	22kg 4-12dia + 2-16dia	20kg 5-12dia + 1-16dia	23%	9%
38kg 6-16dia	35kg 4-16dia + 2-12dia	29kg 4-12dia + 2-16dia	23%	
56kg 4-16dia + 2-20dia	50kg 6-16dia	46kg 5-16dia + 1-12dia	17%	8%
7kg 6-16dia	25kg 4-16dia + 2-12dia	22kg 4-12dia + 2-16dia	16%	12%
38kg 6-16dia	34kg 4-16dia + 2-12dia	29kg 4-12dia + 2-16dia	23%	14%
57kg 4-16dia + 2-20dia	50kg 6-16dia	43kg 4-16dia + 2-12dia	23%	14%
27kg 6-16dia	25kg 4-16dia + 2-12dia	22kg 4-12dia + 2-16dia	18%	12%
40kg 6-16dia	35kg 4-16dia + 2-12dia	30kg 4-12dia + 2-16dia	25%	14%
57kg 4-16dia + 2-20dia	48kg 6-16dia	43kg 4-16dia + 2-12dia	24%	10%
		Average Cost Saving upto	22%	12%

APL APOLLO SG TMT BARS offers higher load bearing capacity with lower number of rebars, lower diameter, lesser congestion and reduces labour time/cost which in-turn offers greater amount of savings.

