



STEEL PRODUCTS & METAL CASTINGS

- Cold Rolled Steel Coil Sheets
- Steel Plates
- Steel Wire Rods and Round Bars
- Structural Steel & Parallel Flange Sections
- TMT Steel Bars & Pipes
- Investment Metal Castings

TOTALITARION

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TOTALITARION

Our Company

We are pleased to introduce our company - Totalitarion, *established in 2018 is an ISO 9001:2015 certified organization*, having registered offices in Mumbai (INDIA) and Tallinn (ESTONIA), we are a trading company specialize in providing integrated solutions in Product Development, Strategic Global Sourcing & Distribution, International Merchandise Trade, Export/Import, Procurement Outsourcing, Supply Chain Management and Technology services.

For further details on our service portfolio do visit us at www.totalitarion.com

Our Values

Governance

Totalitarion is proud to act as a responsible corporate entity in its business activities, embracing innovation and creating a culture of compliance, teamwork and integrity. Conducting our business with high ethical standards and fostering an environment of mutual respect for all employees is imperative to our continued success.

Compliance

Totalitarion conducts all its activities in compliance with local and international laws and regulations. The management team at Totalitarion has very high expectations of all our people when it comes to compliance, and we strive to set corporate directives to comply with industry best practices over and above the law wherever possible.

Social Responsibility

Totalitarion is more than a business; we are part of society. We look to contribute to developing opportunities that improve life in the communities where we are active. Promoting greater linkages with the community and driving greater levels of transparency locally and internationally are vital components. We believe that natural resource wealth should be an engine for economic growth that, when used prudently, contributes to sustainable development, nation-building and poverty alleviation.

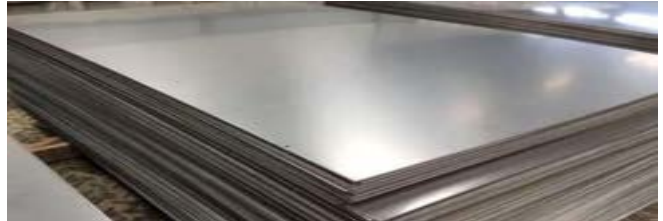
Our Products

We are a supplier and distributor of Steel Parts and Metal Casting products:

➤ Cold Rolled Steel Coil & Sheets



➤ Steel Plates



➤ Steel Wires



➤ TMT Steel Bars



➤ Structural Steel



➤ Round Steel Bars



➤ Steel Pipes



➤ Investment Metal Castings



Cold rolled steel sheets offer a variety of outstanding properties, including easy formability and a smooth, clean surface, and are used in automobiles, appliances, furniture, and many other everyday items. We source best quality steel coils and sheets manufactured at state-of-the-art Mills in India.



Product Standards - Characteristics, Specifications and Applications

■ Characteristics

Superior Workability and dimensional accuracy

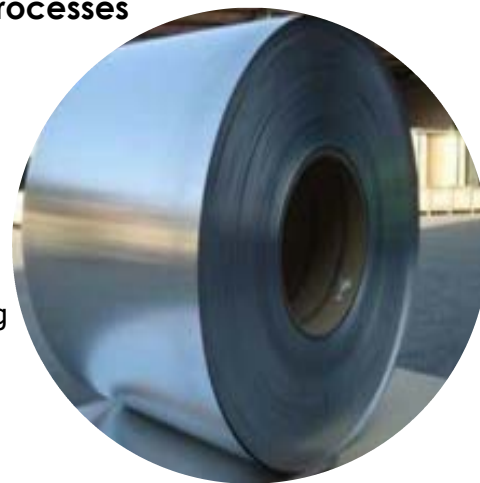
Cold rolled products have excellent formability and minimal deviation in mechanical properties possible with accumulated technical expertise, and modernized facilities and innovative technologies, and integrated quality control system ensure excellent surface quality. Dimensional accuracy is guaranteed by an automatic thickness control system using advanced numerical models.

Wide range of sizes and superior shape

Products range from general use, including extra deep drawing quality and bake hardening sheets, to high strength sheets and sheets for enameling and other special applications. The available size range includes thickness from 0.25mm to 2 mm and width up to 1620mm. Applying tension leveler ensures superior strip flatness.

Manufacturing Processes

- Cold Rolling
- Cleaning
- Annealing
- Skinpass Rolling
- Finishing



Applications	Delivery Conditions (From BSL)		Specifications
Auto Parts	Material	Aluminium Killed	0.25-2.0 mm
	Tolerance on Thickness	± 0.03mm	
	Tolerance on Width	+ 3/-0 mm	
General Engineering & Fabrication	Surface Conditions	Blemish Free	Width Range 876 mm-1620 mm
	Reflectivity	>90%	
	Flatness	≤ 10 I Units	
Precision Tubes	r bar value (EDD)	1.7 min	GRADES (as per IS-513:2008, Reaffirmed 2010, Amendment-1)
	Surface roughness	As per customer's requirement	
White Goods	Packaging	Moisture Proof	CR1/CR2/CR3/CR4
Drum & Barrel	Oiling	Rust Preventive Oil (0.5-3.0 gm/m ²)	*Other thickness/width combination can be supplied with mutual consent

■ Technical Specifications

Rationalized sizes of Cold Rolled Coils available

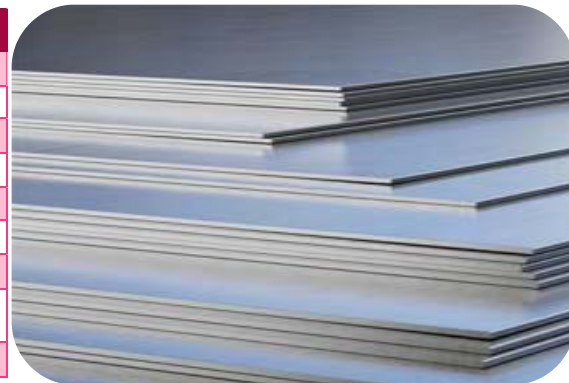
Thickness (mm)	Width (mm)
0.27, 0.30, 0.35	900, 905, 910, 914, 920
0.40, 0.45	900, 905, 910, 914, 920, 1000, 1005, 1010, 1020
0.50	900, 905, 910, 914, 920, 1000, 1005, 1010, 1020, 1105, 1120
0.55, 0.58	900, 905, 910, 914, 920, 1000, 1005, 1010, 1020, 1105
0.60	900, 905, 910, 914, 920, 1000, 1005, 1010, 1020, 1100, 1105, 1120, 1250, 1270
0.63	900, 905, 910, 914, 920, 1000, 1005, 1010, 1020, 1100, 1105, 1120, 1219, 1250, 1270
0.70	900, 905, 910, 914, 920, 1000, 1005, 1010, 1020, 1105, 1219, 1250, 1270
0.80, 0.90	900, 914, 920, 1000, 1020, 1120, 1219, 1250, 1270, 1420
0.95	900, 914, 920, 1000, 1020, 1120, 1219, 1250, 1270
1.00	900, 914, 920, 1000, 1020, 1120, 1219, 1250, 1270, 1320, 1420, 1520, 1580
1.25, 1.40	900, 914, 920, 1000, 1020, 1120, 1219, 1250, 1270, 1320, 1420, 1520, 1580, 1620
1.50, 1.60, 1.85	900, 914, 920, 1000, 1020, 1120, 1219, 1250, 1270, 1320, 1420, 1520, 1580, 1620
1.90, 2.00	900, 914, 920, 1020, 1120, 1219, 1250, 1270, 1320, 1420, 1520, 1580, 1620
In respect of 0.20/0.22/0.25mm thick CR coils, 900 & 920 mm shall be considered as rationalized widths for Full Hard/IS513 CR OH quality	
Bitumen Barrel Size	
0.63	876, 896, 1120
(Barrel Size):	
0.9	914, 920, 1225, 1320
1.00, 1.20, 1.25	914, 920, 1225, 1320, 1580
Coil Dimensions Outer diameter: 2200mm, max. Internal diameter: 510mm (thickness ≤0.63mm & width upto 1020mm) and 600mm (for other sizes) and Coil Weight: 6-23 tons (as per size)	
Tolerance as per IS/ISO – 16162/2005	
Common Grades: IS 513 (Part-1):2016 (CR1, CR2, CR3, CR4), IRSM 41, SAILCOR, Copper Bearing, HSCR-26/35	
Bokaro Steel Plant also produce cold rolled coils and sheets to following foreign standards: ASTM A 568/366, BS-1449-Pt-1, JIS G 3141, SPCC/CD, DIN-1623 St 12.3 or equivalent	

Packaging Scheme – Cold Rolled Coils

Coils are first packed with paper and high-density polyethylene and then secured with steel strapping. A coil is strapped with three eye and two circumferential straps. For identification, one sticker and one metallic tag with sticker are provided. These are then loaded into wagons with the eye of the coil in horizontal position. Coils are then unitized by strapping.

Rationalized sizes of Cold Rolled Sheets available

Thickness (mm)	Width (mm)	Length (mm)
0.60, 0.63, 0.70	900, 1000, 1100, 1250	2000, 2500, 3000, 3600
0.80, 0.90	900, 1000, 1100, 1250, 1400	2000, 2500, 3000, 3600
1.00, 1.25, 1.50, 1.60, 1.85, 2.00	900, 1000, 1100, 1250, 1400, 1500	2000, 2500, 3000, 3600
Barrel Size		
1.0/1.25	915, 920	1815
1.0/ 1.25	1315, 1320	1970, 2000
Common Grades : IS 513/2008 (O, D, DDK, EDB), IRSM 41, SAILCOR, Copper Bearing CR coils/sheets are supplied in oiled/uncoiled condition		
Tolerance as per IS -513/IS/ISO/16162 (2005)		



Packaging – Cold Rolled Sheets

CR Sheets are packed in packets of 3-10 tons each and covered with high density polyethylene and paper. Thereafter these are bound with steel straps. They also have stickers inside the packets and metal tags attached to the strips.

■ Technical Specifications

Chemical Composition * (IS 513 : 2016)

Designation (Quality)	Grade	Carbon (% Max)	Manganese (% Max)	Sulphur (% Max)	Phosphorus (% Max)
Cold Rolled (Full Hard)	CR0	0.35	4.00	0.035	0.050
General Purpose	CR1	0.15	1.00	0.035	0.080
	CR2	0.12	0.50	0.035	0.040
	CR3	0.10	0.45	0.030	0.025
	CR4	0.08	0.45	0.030	0.020
	CR5	0.06	0.25	0.020	0.020
Drawing Quality	ISC270C	0.12	0.50	0.035	0.040
	ISC270D	0.10	0.45	0.030	0.025
	ISC270E	0.08	0.40	0.030	0.020
	ISC270F	0.06	0.25	0.020	0.020
C, Mn Steel	ISC340W	0.12	0.90	0.030	0.050
	ISC370W	0.15	1.30	0.030	0.050
	ISC390W	0.20	1.50	0.030	0.050
	ISC440W	0.20	1.70	0.030	0.050

* Restricted chemistry can be mutually agreed as per Buyer's requirements

Mechanical Properties (IS 513 : 2016)

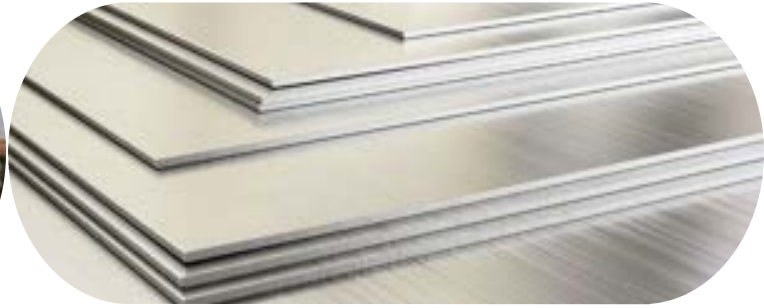
Grade	Yield Point or Proof Stress Mpa, Max	Tensile Strength Mpa, Max	Minimum Elongation		Mean Plastic Strain Ration r-Bar	Tensile Strain Hardening Component n-Value	Test Direction
			Gauge Length 80mm	Gauge Length 80mm			
CR1	280	410	27	28	-	-	T
CR2	240	370	30	31	-	-	T
CR3	220	350	34	35	1.3 min	0.16 min	T
CR4	210	350	36	37	1.4 min	0.19 min	T
CR5	190	350	38	40	1.7 min	0.22 min	T

■ Industrial Applications

Specification	Size	Application
Full Hard IS 513 O un-annealed	0.27 to 0.60 mm thickness	Coated Sheets
SAILNOX – IS 513 O (Sk) / D (K)	Bitumen and Barrel size	Packaging
SAIL PRESS – IS 513 D/DD/EDD	All sizes	Household applications, Automobiles
IS 513 O (Sk) / D (K)	0.8 to 2mm thickness	Precision Tubes
SAILCOR (IRSM41)	1.25 to 2mm thickness	Railway Coaches and Wagons
IS 513 O/D with Cu	0.63 to 2mm thickness	Corrosion Resistant applications
SAILRIM, SAILHUB, SAILMUDGUARD	0.56 to 0.9mm thickness	Cycle Manufacturing
SEMI PROCESSED ELECTRICAL STEEL, SAIL LEC	0.50 to 0.63 thickness	Fractional Horsepower Motor & Electrical Applications
ISC 340/370/390/440W	0.80 to 2.0 thickness	Load bearing components for Automotive, Roll formed section, Industrial Storage systems, Drums, Barrels, etc.



With the expansion of product types and grades, a wide variety of steel plates are now being produced and marketed in addition to ordinary carbon steel plates. These include high-tensile strength steel plates with a tensile strength up to 980 N/mm², steel plates for low temperature service, steel plates for boilers and pressure vessels, high atmospheric corrosion resistant steel plates, abrasion resistant steel plates, stainless steel plates and various types of clad steel plates. We exert the utmost effort to supply high-quality steel plates from best quality mills in India.



Advantages

- ✓ High quality product with wide range of types and grades are available.
- ✓ State-of-the art-controlled rolling and on-line accelerated cooling technology
- ✓ Large size Steel plates available with maximum thickness upto 120mm
- ✓ Smooth Surface appearance of plates with heat treatment in oxygen-free atmosphere
- ✓ Excellent dimensional accuracy and uniformity
- ✓ Optimized delivery control

Product Specifications - Rationalised size of Steel Plates from Plate Mill

Width (mm)	Length (mm)								
Thickness (mm)	1600	1800	2000	2200	2500	2600	2800	3000	3200
6, 8						7000, 9000, 9300	Upto 15000	Upto 15000	Upto 15000
10					6300, 9300, 12500	6300, 7000, 9000, 9300, 12500	Upto 15000	Upto 15000	Upto 15000
12					6300, 8000, 9000, 12500	6300, 8000, 9000, 12500	6300, 7000, 9000, 9300, 12500	Upto 15000	Upto 15000
14				9300	6300, 7000, 9000, 9300, 12500	6300, 7000, 9000, 9300, 12500	5600, 6300, 7100, 8000, 9000, 12500	Upto 15000	Upto 15000
16			7000, 9300	6300, 7000, 9000, 9300, 12500	6300, 8000, 9000, 12500	6300, 8000, 9000, 12500	5600, 7100, 8000, 10000	Upto 15000	Upto 15000
18		5600, 7100, 9300, 12500	6300, 7000, 8000, 9000, 9300, 12500	6300, 8000, 9000, 12500	5600, 7100, 8000, 10000	5600, 6300, 7100, 9300, 10000	6300, 9000, 9300, 10000	Upto 15000	Upto 15000
20	7000, 9300	6300, 7000, 8000, 9000, 9300, 12500	5600, 6300, 8000, 9000, 12500	5600, 7100, 8000, 10000	6300, 7100, 9000, 9300, 10000	6300, 9000, 9300, 10000	5600, 6300, 8000, 9000, 9300	Upto 15000	Upto 15000
22	6300, 7000, 9000, 9300, 12500	6300, 8000, 9000, 12500	7100, 8000, 10000	6300, 7100, 9300, 10000	5600, 6300, 8000, 9000, 9300	5000, 6300, 8000, 9000, 9300	5600, 7100, 8000	Upto 15000	Upto 15000
25	6300, 8000, 12500	7100, 8000, 10000	6300, 7100, 9000, 9300, 10000	5600, 6300, 8000, 9000, 9300	5600, 7100, 8000	7100, 8000	6300, 7100, 12500	6300, 12500	5600, 6300, 12500
28	7100, 10000	6300, 7000, 9000, 9300, 10000	5600, 6300, 8000, 9000, 10000	5600, 7100, 8000	6300, 7100, 12500	6300, 7100, 12500	5600, 6300, 12500	5600, 6300, 10000, 12500	5600, 9300, 10000

32	6300, 9000, 9300, 10000	5600, 8000, 9000	7100, 8000	6300, 7100, 12500	5600, 6300, 12500	5600, 6300, 12500	5600, 9300, 10000	9000, 9300, 10000	8000, 9000, 9300, 10000
36	5600, 8000, 9000	7100, 8000	6300, 7100, 12500	5600, 6300, 12500	5600, 9300, 10000	5600, 9300, 10000	8000, 9000, 9300, 10000	8000, 9000, 9300	7100, 8000, 9000
40	7100, 8000	6300, 7100, 12500	5600, 6300, 12500	5600, 10000	9000, 9300, 10000	9000, 9300, 10000	8000, 9000, 9300	7100, 8000	6300, 7100, 8000
45	6300, 7100, 12500	5600, 6300, 12500	5000, 5600, 10000	5000, 9300, 10000	8000, 9000, 9300	8000, 9000	7100, 8000	6300, 7100	6300, 7100
50	5600, 6300, 12500	5000, 5600, 9300, 10000	5000, 9000, 9300, 10000	8000, 9000, 9300	7100, 8000	7100, 8000	6300, 7100	5600, 6300	5600, 6300
56	5000, 5600, 9300, 10000	5000, 9300, 10000	8000, 9000, 9300	7100, 8000	6300, 7100	6300, 7100	5600, 6300	5000, 5600	5000, 5600
63	4500, 5000, 9000, 9300, 10000	8000, 9300	7100, 8000	6300, 7100	5600, 6300	5600, 6300	5000, 5600	4500, 5000	4500, 5000
75	7100, 8000	6300, 7100	5600, 6300	5000, 5600	4500, 5000	4500, 5000	4500	4500	Upto 15000
80	6300, 7100, 8000	5600, 6300, 7100	5000, 5300, 6300	4500, 5000, 5600	4500, 5000	Upto 15000	Upto 15000	Upto 15000	Upto 15000
90	5600, 6300	5000, 5600, 6300	5000, 5600	5000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000
100	5000, 5600, 6300	5000, 5600	5000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000
110	5000, 5600	5000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000
120	4500, 5000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000	Upto 15000

Note :

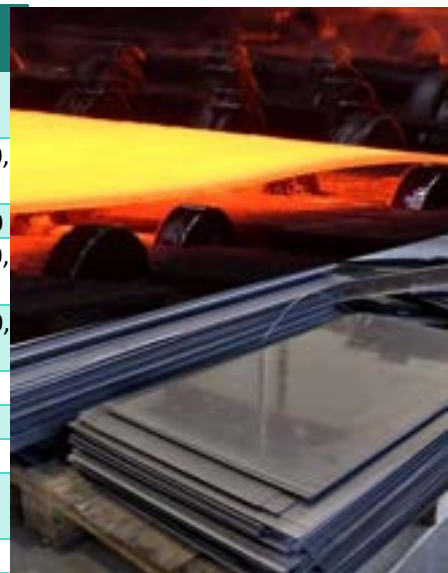
For all thickness plate sizes Length upto 15000mm and width upto 4100mm can be available

Plates above 40mm will be flame cut. Plates upto 13.5m length can also be rolled from slabs of new slab caster

■ Rationalised sizes for Hot Rolled Steel Plates

Thickness (mm)	Width (mm)	Length (mm)
5	1000, 1100, 1250, 1400, 1500, 1600, 1700, 1800	4500, 5000, 5600, 6300, 8000, 10000
6	1000, 1100, 1250, 1400, 1500, 1600, 1700, 1800	4500, 5000, 5600, 6300, 8000, 10000
7	1000, 1100, 1250, 1400, 1500, 1600, 1700, 1800	4500, 5000, 5600, 6300, 8000
8	1000, 1100, 1250, 1400, 1500, 1600, 1700, 1800	4500, 5000, 5600, 6300, 8000, 10000
10	1000, 1100, 1250, 1400, 1500, 1600, 1700, 1800	4500, 5000, 5600, 6300, 8000, 10000
12	1250, 1400, 1500	5000, 6300
Size of Chequered Plates*		
4, 5, 6, 7, 8, 10	1250	5000, 6300, 8000, 10000

*Chequered Plates are supplied with tear drop pattern



■ Plates are manufactured as per below Standards.

Mild Steel – IS: 2062/2011, IS : 5986(2011), ASTM-A-36, EN 10025 S 235, BS 4360, JIS G3101 SS, Dead Soft Quality

API – API 5L Gr. A, B High Tensile – IS 2062E, IS; 5986 (2011) higher grades,

Boiler Quality – IS:2002, ASTM A/SA, BS 1501/1/224, DIN 17155H1, EN 10028,

Special Steel- SAIL HARD, SAIL HITEN AR 690, HOT SAW DISC, IRS M41, ASTM A /SA, DIN 17155, DMR 249 Gr. A, SAIL MA 550/600 HI, SAIL FRS

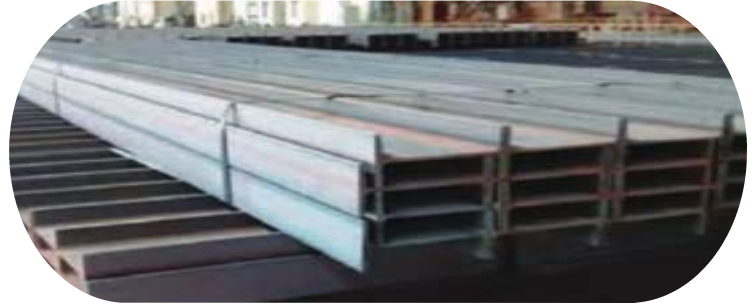
Industrial Applications

Specification	Application
IS 2062:E250, E275 Grades A, BR BO&C	General Structural
ASTM A36, 283	
EN 10025-2:S235, 275 Grades JR, J0, J2	
JIS G 3101	
IS 5986:Gr 165, 205, 235, 255	Flanging and forming operations
IS2062 Grades with "Cu"	Atmospheric corrosion resistance
IRS M41 SAILCOR, HCRS (Cu+P)	
ASTM A242M, 588M	
EN10025-5:235&355 JOW, J2W, JOWP, J2WP	
JIS 3114	Boiler and Pressure vessels
IS2002, IS2041	
ASTM /ASME : 204, 285, 299, 387, 515, 516, 537	
EN 10028-2 & 3	
DIN 17155 HI	Penstock
ASTM A 517 Grade F	Abrasion resistant
SAILHARD	High Tensile
IS 2062 E 300, 350, 410 Grades A, BR, BO, C	
IS 2062 E 450, 550, 600 Grades A, BR	
IS 5986 Gr 325, 355, 420, 490	
Customised SAIL MA Grades	
ASTM A 572 Gr 42, 50, 55	
JIS G 3106	Shipbuilding
IS : 3039,	
Lloyds /ABS Grades A,B,D, AH/DH/EH-32/36	
DNV Grades A, B, D, A/D/E-32/36,	
DMR 249	Oil & Gas pipeline manufacturing
API : 5L Grade A, B, X42, X46, X52, X56, X60, X65, X70	
Chequered Plate conforming to IS 3502	Industrial flooring
Dead Soft Quality	Galvanizing pots & Special Engineering Magnet
SAIL MAG	
HSFQ 250/350 (Thickness lesser than 8 mm)	Auto components and Pre-Engineered
	Building (PEB) Section for forming at ambient temperature
SAIL FORMING 250/350 (Thickness 8 to 14 mm)	Auto components (for forming at high temperature)
SAIL Form 34/38/46,	Fabrication of long and cross members of auto sector
SAIL Super Form 45 (SAPH 45)	
SAIL HITEN 690 AR	ATM Safe
SAIL WR 400 & SAIL WELD 700	Earth Moving Equipment
SAIL - FRS	SAIL Fire Resistant Steel



Parallel Flange Sections & Conventional Structural Steel

Modernization of cities and redevelopment of railways, airports and seaports, high-rise buildings under construction, road freeways undergoing expansions – these and many other projects require Parallel Flange sections. Because of their outstanding properties Parallel Flange Sections and Conventional Structurals are widely used for pile foundation, beams, columns and other architectural structures, in bridges and other civil engineering works. Our endeavour is to supply a wide variety of Parallel Flange Sections and Conventional Structural Steel with high quality and consistent dimension manufactured by state-of-the-art steel mills in India to meet requirements of construction industry and infrastructure demands.



■ Technical Specifications

Parallel Flange Section

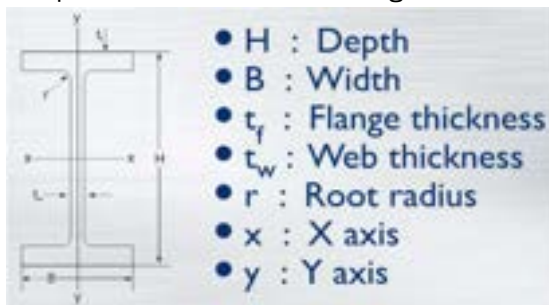
Narrow Parallel Flange Beam (NPB)	Section	Weight (Kg/m)	Equivalent European I Beam	Wide Parallel Flange Beam (WPB)	Section	Weight (Kg/m)	Equivalent European H Beam
	NPB 100 x 55	8.10	IPE 100		WPB 160 x 160	22.75/30.44/42.59/76.19	HE160AA/HE10A/HE160B/ HE160M
	NPB 200 x 100	22.36/25.09	IPE 200 / IPE 200 O		WPB 200 x 200	37.34	
	NPB 250 x 125	30.11			WPB 200 x 200	34.65/42.26/61.30	HE 200AA/ HE 200A / HE 200 B
	NPB 300 x 150	36.53/42.24/49.32	IPE 300A/ IPE 300/ IPE 300 O		WPB 240 x 240	47.40/60.32/83.20/156.68	HE240AA/HE24A/HE240B/HE240M
	NPB 400 x 180	57.38/66.31/75.67/84.00	IPE 400A/ IPE400 / IPE400 O/IPE 400 V		WPB 300 x 300	100.85	
	NPB 450 x 190	67.16/77.58/92.37/95.20/104	IPE 450A/ IPE 450/ IPE 450 O/IPE 450R/ IPE 450V		WPB 300 x 300	117.03/237.92	HE 300B/ HE 300M
	NPB 500 x 200	79.36/90.69/107.32	IPE 500A/ IPE500/ IPE500 O				
	NPB 600 x 220	107.57/122.45/154.47/184.00	IPE600/ IPE 600 O/ IPE600V				
	NPB 750 x 270	173.00/174.54/185.00/196.00/202.49	IPE 750				

Conventional Structurals

Indian Standard Medium Beams (ISMB)	Section	Weight (Kg/m)	Indian Standard Medium Channel (ISMC)	Section	Weight (Kg/m)	Indian Standard Equal Angle	Section	Weight (Kg/m)
	MB 100 x 50	8.95		MC 75 x 40	7.14		Angle 50 x 50 x 5/6	3.79/4.49
	MB 150 x 75	14.96		MC 100 x 50	9.56		Angle 60 x 60 x 5/6/8	4.50/5.40/7.00
	MB 200 x 100	24.17		MC 125 x 65	13.10		Angle 65 x 65 x 5/6/8/10	4.98/5.91/7.73/9.49
	MB 250 x 125	37.30		MC 150 x 75	16.80		Angle 70 x 70 x 5/6/8/10	5.30/6.30
	MB 300 x 140	46.02		MC 200 x 75	22.30		Angle 80 x 80 x 6/8/10	7.36/9.65/11.88/14.05
				MC 250 x 82	34.20		Angle 90 x 90 x 6/8/10/12	8.32/10.92/13.47/15.95
				MC 300 x 90	36.30		Angle 100 x 100 x 6/8/10/12	9.26/12.18/15.04/17.83
							Angle 150 x 150 x 10/12	22.93/27.29
							Angle 200 x 200 x 12/16/18/20/25	36.85/48.53/54.3/59.96/73.9

NEX Parallel Flange Sections

Parallel Flange Sections (IS 12778) are hot rolled steel structural sections, with parallel flanges having square toes and curves at the root of flange and web. Parallel Flange Sections meet international standards of quality and stringent requirements of the infrastructure and construction industries. Parallel sections are preferred by today's structural engineers, architects, and construction companies. NEX Parallel Flange Sections are more efficient and provide more economic designs better Utilization Ratio of sections.



Parallel Flange Sections have multiple advantages over conventional sections:

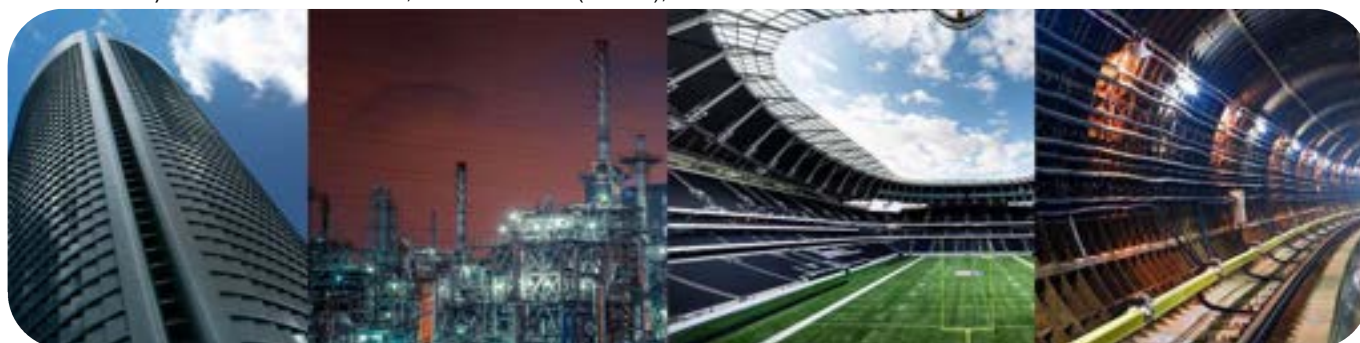
- ✓ **Higher Product Flexibility** - Wide range of width, flange thickness and web thickness combinations for any nominal depth
- ✓ **Mechanically More Efficient** - Higher bending strength for beams and higher axial load carrying capacity for columns
- ✓ **Structurally More Stable** - Greater radius of gyration lowers slenderness ratio and allows withstanding of buckling to a greater extent
- ✓ **Lighter Structures** - Higher strength- to-weight ratio leads to lighter structures and foundations
- ✓ **Easier Fabrication** - Easier connection of joints by direct bolting on flanges without using tapered washes and easier but Welding of plate at edge of flange
- ✓ **Economical** - Substantial saving in material weight when used as compression member (columns) or flexural member (beams)

NEX PFS AVAILABLE SIZES (As per IS 2062:2011 grades readily available - E250, E300, E350, E410, E450)

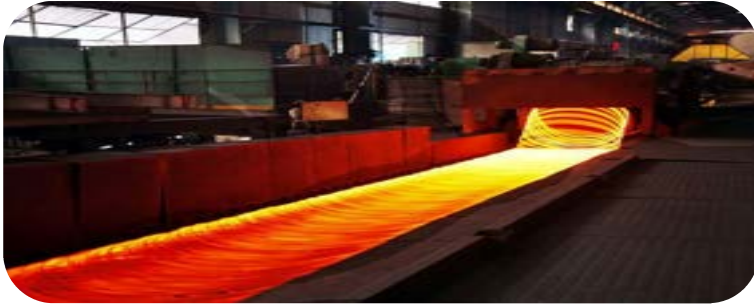
Narrow Flange Parallel Beams	Wide Flange Parallel Beam
NPB 100 X 55 X 8.10 / NPB 200 X 100 X 22.36 / NPB 200 X 100 X 25.09	WPB 160 X 160 X 23.84
NPB 250 X 125 X 30.11 / NPB 300 X 150 X 36.52 / NPB 300 X 150 X 42.24	WPB 160 X 160 X 30.44
NPB 300 X 150 X 49.32 / NPB 400 X 180 X 57.38 / NPB 400 X 180 X 66.3	WPB 160 X 160 X 42.59
NPB 400 X 180 X 75.66 / IPE 400R [400X 180 X 84.00] / NPB 450 X 190 X 67.15	WPB 160 X 160 X 76.1 9
NPB 450 X 190 X 77.57 / NPB 450 X 190 X 92.36 / IPE 450R [450 X 190 X 95.20]	WPB 240 X 240 X 47.39
IPE 450V [450 X 190 X 104.00] / NPB 500 X 200 X 79.36 / NPB 500 X 200 X 90.68	WPB 240 X 240 X 60.32
NPB 600 X 220 X 122.45 / NPB 600 X 220 X 154.46 / IPE 600V [600 X 220 X 1 84.00]	WPB 240 X 240 X 83.20
NPB 750 X 270 X 174.54 / NPB 750 X 270 X 202.48 / IPE 750 [750 X 270 X 173.00]	WPB 240 X 240 X 1 56.67
IPE 750 [750 X 270 X 185.00] / IPE 750 [750 X 270 X 196.00]	WPB 300 X 300 X 117.04

Industrial Applications

Flyovers, Stadiums, Metro Rails/ Indian Railways, Foot Over Bridges, Multi-level Car Parks, Industrial Buildings, Raw Material Handling Plants, Residential Complexes, Commercial Complexes, Power Plants, Ports/Offshore Structures Oil Refineries/Petrochemical Plants, Electric Poles (Masts), Trailer and Truck Bed Frames.



Wire rod is a long steel semi-finished product a round cross-section and is wound up in coils, manufactured by hot rolling billets on continuous rolling mills. We supply Wire Rod products with High/Medium/Low carbon grades, Electrode grade, CHQ grades manufactured by best Steel mills in India. With the installation of modern technology wire rods mill along with quality steel production facility, assuring supply of wide variety of wire rod meeting the stringent requirements of many end-users with high quality and consistent dimension. Dimensional accuracy is guaranteed by an automatic thickness control system using advanced numerical models.



Technical Specifications

Size Range - Available from 5.5mm to 22mm

Regular sizes are 5.5mm, 6mm, 6.5mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm, 13.5mm, 14mm, 20mm, 22mm

Product Attributes

- ✓ Clean Steel – Very low tramp elements like Sulphur and Phosphorus
- ✓ Gaseous content – Nitrogen 70ppm (max.)
- ✓ De-carburization – 1.0% of diameter (max.)
- ✓ Material soundness – Free from pits, seams, blow holes, etc.
- ✓ Fine grain steel as per client's requirements
- ✓ Uniform chemistry and properties.
- ✓ With Vacuum Degassing (RH-OB) facility, we can adhere to stricter specification with respect to Hydrogen as per client requirements.

Manufacturing

- **Steel Making** - With Hot Metal Desulphurization (HMDS), Combined Blown Converter, Secondary refining including Vacuum Degassing (RH-OB), Closed Casting & Electro-Magnetic Stirring (EMS) facilities, clean steel is produced.
- **Reheating Furnace** - State-of-the-art walking beam furnace with auto control of Air Fuel ratio having capacity of 160tones/hour
- **Mill** - High pressure descender of 250 bar (max) for removal of primary scales, Heat retaining hoods to reduce the temperature difference between head and tail of billets. Combination of 16 horizontal & vertical stands, 2 pass, 8 pass and 4 pass no twist block for No-Twist Rolling (Total 30 stands)
- **Cooling Conveyor** - 113 mtr long cooling conveyor to cool the wire rod across the transformation range at such a rate as to enable the steel to achieve the desired mechanical and metallurgical characteristics.
- **Controlled cooling** or wire rods loops, fast natural or slow cooling rates can be set using combination of blowers and insulating hoods.
- **Automatic compacting and strapping** of coils with pressing force of 400kN (max.)

Testing Facility

- Optical Spectrometer, Universal Testing Machine, Metallurgical Microscope, Hardness Tester, Magnascope, Micro Ohm Meter, Cold Upsetting, Bend / Rebend Machine

Grade	Specification	Application
Low Carbon Grades	IS7887 Gr2/3/4/6M/7M SAE 1006/1008/1010/1015/1018	Manufacturing of nail, mesh, general purpose wires, industrial wires, rush wires, agricultural wires, galvanized wires, and other general engineering purposes
Cable Armour Quality	IS7887 Gr2 (CAQ)	Armour in Cables
High Carbon Grades	IS 7904 HC38B, 52B, 62A, 72B, 78B, 80B, 82B IS 7904 HCR1130Cr, HC78BCr, JISG 3506, SWRH52B, SWRH62B, SWRH72B, SWRH77B	Manufacture of wire ropes, needle wires, chain rivets, umbrella ribs, piano wires, ACSR core wires, Pre-stressed Concrete (PC) Wire, Low Relaxation Pre-stressed Concrete (LRPC) Wire
Electrode Grades	IS 2879 EWNr, AWS A5.18 ER70S6 (MIG)	Stick electrodes & MIG electrodes
Forging Quality	EN 8D, EN 8DCr, EN 8ACr	Bright Bars & Auto Components
Cold Heading Quality	IS1169 21C10BT / SAE 10B21, IS1169 26C10BT / SAE 15B25, SAE 10B33, 19MnB4 (M)	High Tensile Fasteners

- **ISO 9001**
- **POWERGRID**
Corporation of India
certification



- ❖ Weight : Coil weighs from 980 Kgs upto 2000 Kgs approx.
- ❖ Coil Inner Diameter: 850/900mm
- ❖ Height : 1500mm
- ❖ Coil Outer Diameter : 1250mm
- ❖ Packaging: Wire rod coils will be secured with 4-6 metallic straps (including 2 circumferential straps)



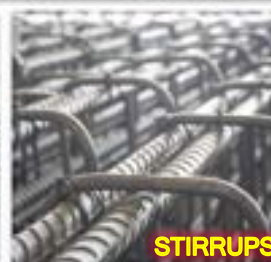
Manufactured from high quality iron ore billets, our Thermo-Mechanically Treated Bars [TMT] have the highest level of purity with lowest Sulphur and Phosphorous content, making it strong. The extensive metallurgical operations followed by advanced refining technologies result in uniform chemical composition & physical properties along with enhanced strength, ductility and elongation. The process controls at each critical operation ensure uniform properties in each rebar and provides the TMT rebars with a soft ferrite and pearlite fine grained core, a strong and tough tempered martensite layer imparting it with high ductility as well as strength thus making it ideal for high rises, dams, bridges, individual houses and any critical structures where high yield strength is required without compromising on the elongation properties.

**ADVANTAGES**

Superior
Quality &
Chemical
Properties

Superior
Weldability
- Low
Carbon

Excellent
Bonding
with
Cement

**TMT BAR****CUT & BEND BARS****BINDING WIRES****FOOTING BARS****WELDED WIRE MESH****ANGLES & CHANNELS****STIRRUPS**

Earthquake
Resistant
Properties -
High
UTS/YS

Excellent
Bendability

Corrosion
Resistant

Greater
Fire
Resistant

Rationalized Sizes of TMT Bars

Nominal Diameter (mm)	Weight (Kg/m)	Grade
6	0.222	Common Grade: IS 1786 : 2008 Other Grades : BS4449 Grade B500B, CS2 Grade 500B, S560 GRADE 500B, ASTM-A615 Grade 40 (For TMT Wire Rods) ASTM-A 615 Grade 40/Grade 60 (For TMT Bars)
8	0.395	
10	0.617	
12	0.888	
16	1.58	
20	2.47	
22	2.98	
25	3.85	
28	4.83	
32	6.31	
36	7.99	
40	9.85	

Mechanical Properties

Grade	Yield Strength (MPa)	Ultimate Tensile Strength min. (MPa)	UTS/YS Min.	% Elongation min
Fe 500D EQR	500 (Min)	565	1.10	16.0
Fe 550D EQR	550 (Min)	600	1.08	14.5
Fe 600	600 (Min)	660	1.06	10.0
Fe 500D HCR	500 (Min)	565	1.10	16.0
Fe 550D HCR	550 (Min)	600	1.08	14.5
Fe 600 HCR	600 (Min)	660	1.06	10.0
Fe 500S	500 (Min) 650 (Max)	1.25 times YS	1.25	18.0

Applications

Grade	Application	Special Qualities
TMT EQR	Reinforced Concrete Construction in buildings, bridges, and other concrete structures. Particularly suitable for earthquake prone zones	It has high ductility (UTS/YS ratio), higher elongation, uniform elongation and narrow range YS. In addition, it has excellent bendability, good weldability and high fatigue resistance on dynamic loading.
TMT HCR	RCC Construction exposed to coastal, marine, industrial corrosion, or underground environment	In addition to above it possesses high corrosion resistance properties.
TMT Fe500S	Suitable for earthquake prone zones particularly Zone IV & Zone V	It has very high ductility (UTS/YS ratio), high elongation and high uniform elongation all of which are very much required for high earthquake prone areas.
TMT Rock/ RoofBolt	Underground mine, tunnel road support, Slope stabilization in hills and Soil nailing / anchoring	High strength, better toughness and excellent bonding properties to grouting material due to its modified rib designs



We supply best quality Round Steel Bars manufactured by state-of the art mill which is operated with advanced rolling equipment such as reducing and sizing mill, high-speed shear, pinch rolls and laying heads along with controlled temperature rolling and controlled cooling to meet the processing requirements of various grades of carbon and alloy steel.



Rationalized Dimensions

Diameter Size (mm)	Nominal Weight (Kg/m)
16	1.58
18	2.00
20	2.47
22	2.98
25	3.85
28	4.83
32	6.31
34	7.13
36	7.99
38	8.91
40	9.85
42	10.88
45	12.50
46.5	13.33
48	14.21
50	15.40
53	17.32
56	19.30
60	22.20
63	24.50
65	26.00
71	31.09
75	34.70
77	36.57
80	39.47

Specifications

Carbon Steel Grades:

- ❖ **Plain Carbon Steel** - I15C8, 35C8, 45C8, 55C8, C30, C35, C38, C40, C45CR, C48, C50, C55, C65, CK35, CK45, En2a, En3, En32B, En42, En43, En43AM, En5, En8, En8DCR, En9, JDMA1045, S20C, S25C, S35C, S38C, S40C, S43C, S45C, S48C, S50C, S53C, S58C, SAE1006, SAE1008, SAE1010, SAE1015, SAE1016, SAE1018, SAE1019, SAE1020, SAE1025, SAE1030, SAE1035, SAE1037, SAE1038, SAE1040, SAE1041, SAE1045, SAE1047, SAE1050, SAE1052, SAE1055.
- ❖ **Carbon Manganese Steel** - En15A, En15B, SAE1524, SAE1541, 45M5, S152-3

Case Hardening Steel

- ❖ **Chrome Steel** - 15Cr3, 17Cr3
- ❖ **Chrome Manganese Steel** - 16MnCr5, 16MnCrS5, 20MnCr5
- ❖ **SCM Category Steel /Chrome- Moly Steel** - SCM415H, SCM418H, SCM420H
- ❖ **Nickel Chrome / Nickel Chrome Moly Steel** - SAE8620H, SAE8622, SAE8625, SAE8822, En351, En352, En353

Through Hardening Steel

- ❖ **Chrome Steel** - 40Cr4, 40Cr4B, 40Cr4C, 41Cr4, 41Cr4, En18, En18C, En18D
- ❖ **Chrome Moly Steel**- SAE4140
- ❖ **Ball Bearing Steel**- En31, SAE52100
- ❖ **Free/ Semi Free Cutting Steel**- n15AM, En18DM, En1A, En8DM, En8M
- ❖ **Spring Steel**-En45, En45A, 55Si7, 60Si7, 37MnSi5, SUP11A, SUP9G, 50CrV4, En47, 38XC, 52Cr4Mo2V, 59CrV4, SAE4161H, SUP12, 51CrV4

Steel pipes and tubes are multidimensional and manufactured for multifarious purposes from gas to domestic sewage, medical, factories, construction, shipyards and shipbuilding, oil refineries and even space stations. We supply ERW and SW Pipes manufactured by sophisticated state-of the art rolling mills with advanced importer machinery for ERW, Black and Galvanized Steel Pipes & Tubes in different thickness from 2.00 mm to 9.50 mm having an outer Diameter ranging from 1/2" to 14" NB as per specifications of ISI, API, BIS which confirms to the various international standards.



Product Range

ERW Pipes

In grade IS 3589 Fe 330, Fe 410, Fe 450, IS 4270 and ASTM A53 Gr. A & B

Diameter (Inch)	Thickness								
8 5/8	4.8	5.2	5.6	6.0	6.4	7.1	7.9	9.5	10
10 3/4	4.8	5.2	5.6	6.0	6.4	7.1	7.9	9.5	10
12 3/4	5.0	5.2	5.6	6.0	6.4	7.1	7.9	9.5	10
14	5.0	5.2	5.6	6.0	6.4	7.1	7.9	9.5	10
16		5.2	5.6	6.0	6.4	7.1	7.9	9.5	10
18		5.2	5.6	6.0	6.4	7.1	7.9	9.5	10

Pipes can be supplied with rust preventive coatings like varnish, red oxide, enamel, liquid epoxy coating, 3LPE coating etc.

SW Pipes

In grades IS 3589 Fe 330, Fe 410, Fe 450 and IS 5504

Outer Diameter (Inch) : 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64

Pipes can be supplied with rust preventive coatings like varnish, red oxide, enamel, liquid epoxy coating, 3LPE coating etc. Other ODs between 20" and 64" can also be produced.

Length :

- EWR Pipes are available with length of 6.2m to 12.4m, usually supplied with plain bevelled edges with bevelled angle being 30deg, with root face of 1.6 +/-0.8mm
- SW Pipes are available with length of 7.5m to 13m, usually supplied with plain bevelled edges with bevelled angle being 30deg, with root face of 1.6 +/-0.8mm

We have strategic tie-ups with foundries based in Pune, Solapur and Lucknow for design, product development, manufacturing, and supply of investment metal castings and auto forging component assemblies.

We are committed to manufacture and supply Investment Castings & Machined Components with Excellent Performance Specifications, Zero Rejection ratio, Maintaining WCQ for our customers and earning a fair return on the value we deliver.

We strive for excellence and innovations in Investment Castings

- Alloys Casted: Ferrous and non-ferrous, Stainless Steel, Plain carbon steels, low and high alloys steels, Cobalt, Copper, Bronze Nickel based alloys, Cast Iron, Aluminum alloys etc. as per international standards.
- Parts that are typically made by us in Investment castings include those with complex geometry upto 3mm wall thickness.
- Max size that can be casted: 26 inches (660mm)
- Max weight that can be casted: 110 kg.
- Production Capacity: 150 tons per month

Our associated foundries operations comply with international quality and safety standards

- ✓ ISO 9001:2015 (QMS)
- ✓ IATF 16949:2016 (Automotive Standard)
- ✓ ISO 14001:2015 (Environment Management)
- ✓ ISO 45001:2018 (Health & Safety Management)

Industries we cater to :

- ❖ Automotive
- ❖ Renewable Energy
- ❖ Industrial Manufacturing
- ❖ Railways
- ❖ Oil & Gas
- ❖ Aerospace

ASSOCIATED FOUNDRY PROCESSES



14 Wax Press Machines

Air Con Shelling Room



MELTING DEPARTMENT OF FOUNDRY - 4 AIR-MELT FURNACES - 100kgs, 150kgs, 300kgs, 500 kgs

2 AUTOCLAVES FOR DEWAXING



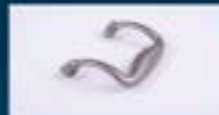
Products Developed



PUMPS AND VALVES COMPONENTS



CUSTOM FITTINGS FOR HARDWARE AND CONSTRUCTION



Made in India

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We Deliver.

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To know more about our products and services, do visit our website www.totalitarion.com

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