Essar Steel's branded hi-end steel plates

Growth in the Indian construction and infrastructure industry triggers a demand for specialised steel plates

Understanding the emerging requirements for specialised steel in the Indian infrastructure space, Essar Steel has launched a range of hi-end branded steel plate products. These products have been specifically crafted and customised to suit the best industrial requirements for sectors such as construction, oil and gas, power, and ship building.

They have also been specifically designed, keeping in mind the different sectors that they would be used in. For example, submerged undersea tanks used in the hydrocarbon sector require the steel to be atmospheric corrosion resistant and have extremely low sulphur content.

Heavy use of steel

The construction and infrastructure industry is the largest consumer of steel in India accounting for 61 per cent of total consumption. This is not surprising given the heavy use of steel in this sector and soaring construction and infrastructure activity in the country over the past decade.

Investment in infrastructure is expected to expand at a CAGR of 14.5 per cent over FY12-17 as per the Planning Commission. The Commission expects total investment in infrastructure to be $1 trillion in the 12th Five-Year Plan (2012-17), as compared to $428 billion in the 11th Plan. This increase in investment in infrastructure is set to raise steel demand by roughly 40 mtpa from FY13 to FY17.

The government aims to increase infrastructure spending from 8.4 per cent of GDP in FY11 to 10.7 per cent of GDP by FY17. Due to such a huge investment in infrastructure, the demand for steel will surge in the months ahead.

Advanced metallurgical process

Looking at the opportunity and the growing need in the infrastructure sector, Essar Steel has introduced 'Essar Structor & Essar Penstar', a range of products that have been designed to support this sudden surge in demand in the sector. The USPs of these products are that they replace the country's dependence on imported plates for critical infrastructure development.

Essar adopts the most advanced metallurgical processes and that makes these products unique, employing the best steel making technology, the products are customised with various treatments to control properties in steel like sulphur level and phosphorous and gaseous content. Calcium treatment and inclusion shape control reduces internal discontinuities giving plates improved toughness, enhanced fatigue life, better weldability and excellent shape properties.

These products are customised and equipped with advanced Hydraulic Automatic Gage Control (HAGC), online Gamma Thickness Gauge and L-2 Automation. The company can supply steel plates as per actual thickness, width, length and profiles, required for specific projects or applications.

Ravi Singh, Senior Vice President, Essar Steel, said," We are the only Indian company who is currently offering a bouquet of branded steel plates for the multiple requirements of the industry. All our branded steel products follow SEL 1 standard which is the highest amongst European standards."

The demand for thicker, wider and ultra-high strength steel plates has been increasing due to rapid industrialisation across the world. Key industry players across different segments in India have concurred that availability of thicker and wider width plates will result in enormous savings on fabrication and welding, and also lead to an improvement in yield, quality and durability.

The company has joined the ranks of international steel producers who manufacture extra wide plates. The 4 Hi Rolling mill has a roll separating force of 10,000 metric tons and can produce plates with a width of up to 5 metres. Other facilities include normalising, accelerated cooling/ direct quenching, hot and cold leveling and quenching and tempering.

Significant milestone

The plates have been well received in the market both domestically and internationally. This achievement is the significant milestone as the company marks the beginning of its journey to become a leading supplier of plates covering all segments for various applications such as construction, engineering equipment, yellow goods, large diameter pipes for oil and gas, shipbuilding, pressure vessels, etc with value added products.

Ravi Singh, Senior Vice President, Essar Steel India said, "We do not stop with supplying quality plates meeting the needs of our customers. We build trust and bond through customised solutions to meet the needs of customers to create value. We also have an application engineering experts to understand customers' needs to provide custom made solutions".

Hi-end branded steel products

Sr. No	Type	Application	Uses
1	Boilers and Pressure vessels	Essar Thermor	Sub critical to super Critical boiler applications. High pressure and low pressure applications.
2	Yellow Goods & Mining Equipment	Essar Rockstar & Essar Boomor	Structures like truck body,arm and support structures
3	Line Pipe	Essar Fluidor & Essar Acidor	Line pipes carrying different fluids, gases incl. sour gas , offshore structural application
4	General Engineering and Fabrication	Essar Structor& Essar Fanor	General Engineering / fabrication
5	Ship- building	Essar Shipor	Merchant Ships, cargo, bulk carriers, submarine hulls and low temperature applications
6	Construction	Essar Structor& Essar Penstar	Dams, Bridges, buildings, power plant structures, penstock and offshore platforms
7	Wind Engineering	Essar Structor	Conical sections of long wind towers

Product specifications include

Sr.No	Essar Penstor		Essar Structor	
1	Thickness	5-70 mm(Q&T) 5-90 mm (Normalized) Other sizes can be discussed on case to case basis	Thickness	5-150 mm (As rolled) 5-90 mm (Normalized) 5-70 mm (Q&T) >90 mm normalized on case to case basis
2	Width	900-4850 mm (trimmed edge)	Width	1100-4950 mm (Mill edge) 900-4850 mm (trimmed edge)
3	Length	3000-25000 mm	Length	3000-25000mm
4	Supply condition	Normalised and Q&T	Supply condition	As rolled, Normalised & Q&T
5	Yield strength	350/500/550/690/ MPa	Yield strength	350/410/450/500/600/650/690 MPa
6	Standard	ASTM 537 & 517, EN 10025, BIS & other relevant grades	Standard	BIS, EN 10025, ASTM, JIS & other relevant grades

The demand for high-strength, extra wide plates is growing in the country due to the changing market needs brought about by an increased usage of sophisticated technology in various user industries.

Best-in-class technology

Set up at a cost of nearly Rs. 2,000 crore, the plant has an annual production capacity of 1.5 million tons and has capability to produce up to 5 metre wide steel plates. It has been set up with the best in class technology from VAI-Siemens. Essar Steel is known for its innovation and has been setting new benchmarks in developing new steel products. These plates will also conform to all relevant national and international specifications.

Essar's ultra-modern mill with Level-II automation system and flatness and profile control models are equipped with heat treatment (normalising and quenching) facilities. It is also equipped with online full body ultra-sonic testing and shot-blasting and painting facilities. The mill has latest technologies for thermo-mechanical controlled rolling (TMCR) to achieve specific reduction by controlling the temperature during rolling, Plan View Rolling (PVR), to improve the plates' rectangularity

Extra wide plates

Plate product has got a wide range of dimensions from 5 mm to 150 mm in thickness, 900 to 4900 mm in width and 3 meter to 25 meter in length. Plate supply range covers all segments catering various industries such as manufacturing of large diameter pipes, engineering equipment, ship building, boiler manufacturing, construction, etc. All these will be conforming to various specifications. This will substitute the products that were hitherto imported.

Accelerated Direct Cooling Operations (Adco) to provide a highly controllable, accurate and accelerated cooling capability that will ensure homogeneous cooling over the entire plate width, edge masking to get a homogeneous temperature pattern over the width of the plate. This avoids overcooling and under cooling of plate edges

Essar has now become the country's only steel plant with integrated facilities from heavy plates, hot rolling, cold rolling, galvanizing and colour coating, with a full distribution business with service centre and steel hypermarts.

World-class quality

The plate mill is supported by world-class testing facility with online inspections system such as full body ultrasonic testing, under surface inspection and a full-fledged NACE lab. The mill has the highest level of automation for process control, plate tracking, marking and stenciling, etc.

The plant is well connected by rail, road and sea. Recently, the port capacity has been expanded to allow large vessels to be berthed alongside the port. This will ensure timely delivery of product to the customers.

Essar Steel, global producer of steel, is a fully integrated flat carbon steel manufacturer, with presence in Canada, USA, India, UK, UAE and Indonesia. It is the most versatile flat steel producer with integrated facilities from extra wide plates, hot rolling, cold rolling, galvanizing and colour coating, pipes with a full distribution business with processing and distribution centres and steel hypermarts.

Essar Steel has a global steel production capacity of 14 million tons per annum (mtpa). It operates seven steel processing and distribution centres in India and Indonesia with an aggregate capacity of over 4 million tons.

Essar has the largest network distribution channel of Essar Hypermarts. Its products find wide acceptance in highly discerning consumer sectors such as automotive, white goods, construction, engineering and shipbuilding.