

From the Desk of EIC

Dear Stakeholders,

TGS is playing a key role in the Growth Plans of Tata Steel. We are executing several projects crucial to Tata Steel's expansion. Our participation in the on-going projects has provided us with substantial learning, which has further enhanced our confidence to handle large and complex projects in the metal and minerals sector, where we have a major presence. We do hope that the learning we are acquiring as an organization, is going to stand us in good stead as we move ahead.



At TGS, we are taking several steps to upgrade the facilities and enhance the skills of the workforce to gear up for the opportunities. We took up the Lime Calcining Plant of Tata Steel to foray into the area of turnkey solution. The project is now nearing completion.

Our endeavour to relentlessly understand and deliver customer requirement has led to some major accomplishments in the market front with TGS becoming the first Indian supplier to get developmental order from DLW for supply of fully machined Crank Case Assembly and our enlistment with EIL for supply of cranes.

All these are steps towards building the capabilities and we are confident that TGS will play a major role in the growth of Tata Group.

With best wishes



Rajesh Ranjan Jha

News From Design

Combined Car for KPO

The major contributors to the weight of the Combined Car are main car frame and the rocker frame. Estimated weight of the car frame and rocker frame during basic engineering was 110t and 50t respectively. For the 330t Combined Hot Metal and Slag Transfer Car for the upcoming Kalinganagar Project at Odisha, TGS has substantially reduced the weight of the car by design optimization. This was accomplished through simulation based optimization using the Finite Element Analysis route. For the simulation, Pro -E and Ansys Workbench software packages were used. As a result, weight of the car frame was reduced from 110t to 87.5t and that of rocker frame from 50t to 42.5t.

TGS Designs Plate Straightening Machine

TGS has designed the Plate Straightening Machine with in-house know how. Extensive research was done to understand the plate straightening, process mechanism and control which were appropriately factored into the design. To validate & optimise the design, Finite Element Analysis (FEA) was carried out.

The in-house design has the following features:

- Handling of higher plate thickness up to 50mm.
- Individual Planetary gearbox with hydro motor in working roller drive to provide required straightening torque. The individual drive ensures:
 - o Better life of work
 - o Elimination of failure of group drives universal shafts and reduction gear
 - o Reduction in cost since rollers of different diameters can be used
- Quick action hydraulic cylinders control straightening force and vertical position control of upper rollers.

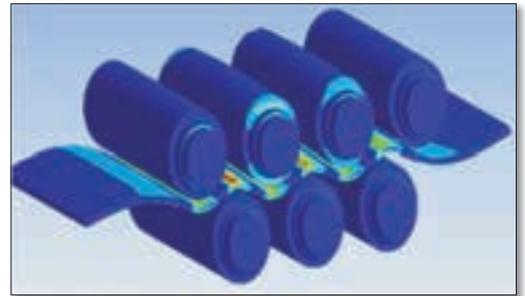


Plate Straightening Machine

The machine consists of series of staggered mounted rollers having movable upper rollers and fixed lower rollers. In order to control straightening force and vertical position control of upper rollers, each upper roller is pivotally mounted over the quick action hydraulic cylinders.

As the plate passes through the rollers, it undergoes alternate decreasing bends. At each bend, the fibers facing the rolls are compressed and the fibers on the other side of the plate are stretched. At first, the bend plate undergoes plastic deformation beyond yield limit. Strong bends create some internal stresses which are removed by the latter bends of the straightening machine.

The in-house designed machine will augment the existing plate straightening machine supplied by SIMTOOL and will cater to the increase in the demand which is not being met by the existing machine.

Design Up-gradation of 500 T Ladle Crane for Kalinganagar Project

The upcoming 6.0 MT steel plant of Tata Steel at Kalinganagar Odisha had a requirement of 500t lifting capacity Ladle Crane for which order was placed on TGS. TGS had never designed such a crane so the technology was purchased from JSC Sibcranex Russia. On scrutiny of the design, many shortcomings were found which were not acceptable to the customer. In the process of design check, TGS added several features to improve the existing design.

While the overall weight of the crane has been reduced by nearly 15 tonnes, the endurance limit has increased to 1.2 million stress cycles which is 2.5 times higher than the Sibcranex design. The equipment life is expected to be more than 30 years – nearly 1.5 times higher.

In addition, the new design provides better features for safety and maintainability such as easy dismantling and approachability. The design is compact with reduced drum diameter, less weight of gear box and semi-modular CT drive. The main hoist has more than 20% higher hoisting speed compared to the original design. Due to reduction in Rope Drum diameter, the machining of the drum can be done using the existing resources of TGS. This also results in less torque on the gearbox, to the extent of more than 20% leading to the downsizing of the gearbox and reduction in its cost.

Business Development

New Customer for Structural Business

In its continuous endeavor to enhance the newly developed Structural business, TGS has developed a new customer, Essar Projects India Limited (EPIL). EPIL, an EPC company responsible for all the projects undertaken by the Essar Group is participating in an oil refinery project of IOCL at Paradip. Viewing the potential of huge requirement of fabricated structures, TGS has started its business association with EPIL by procuring an order for supply of 5000MT of fabricated structures in 6 months time for the project.

EPIL is also in the process of executing a 3 X 600 MW coal based thermal power project for Essar Power near Ranchi for which TGS has received an enquiry for the supply of 10000MT of fabricated structures. In addition, Essar group has many more projects in the pipe line like 2200 MW thermal power project in Odisha, Ore beneficiation project at Joda, Coke Oven project at Hazira, Pellet Plant modernization project at Paradip among various others, thereby creating potential for a long term business association with Essar group.

Business Development

EIL Vendor Enlistment for TGS

TGS has been registered as an approved vendor with M/s Engineers India Limited (EIL) for the supply of EOT cranes in the range of 40-200 tonnes. EIL is Asia's leading design, engineering and turnkey contracting company, providing a complete range of project services needed to conceptualize, plan, design, engineering and construction of projects to meet the specific requirement of its clients in the areas of 'Petroleum refinery', 'Petrochemicals', 'Offshore and onshore oil & gas', 'Mining', 'Metallurgy' and 'Infrastructure'.

In line with the strategy of TGS to increase its external business volume, EOT Crane business has been identified as one of the potential target markets. Accordingly, actions have been initiated to get registered with different renowned consultants, EPC contractors, potential Govt. bodies and non – Govt. organisations.

TGS applied for 'Vendor Registration' for EOT Cranes based on its vast credentials. A high level team from EIL visited twice for survey and to understand the capability, infrastructure, process of working, quality control and previous success history of TGS.

During the visit to TGS, EIL team expressed its satisfaction and recommended few improvement actions. TGS looks forward to creating a long business association with EIL.

News From Manufacturing

TGS to Commission a State of the Art Normalising Furnace

In line with our commitment to serve the customers with world class quality, TGS is commissioning a 60 MT Bogie Hearth Normalizing Furnace for normalizing the plates in order to remove the internal stresses developed during metal working. The state of the art furnace will enable normalization of the IS 2062/ IS 2002 grade structural steel plate under our quality control process which we used to procure from outside.

The basic features of the furnace design proposed are in accordance with the up to date standards. Special care has been taken to ensure ease of operation and maintenance, accuracy of heating and safety of human beings as well as the equipment and its ancillaries.

The duty of the furnace is meant for normalizing heavy thick plates and structural steels. The gross batch load capacity of the furnace is 70 MT including estimated weight of 10 MT for support piers.



Normalising Furnace

Laminar Strip Cooling System for LD#3 TSCR

Growth Shop successfully manufactured the Laminar Strip Cooling System for TSCR of Tata Steel. The Laminar Strip Cooling is a critical system on the rolling mill run-out roller table intended to facilitate forced double sided water cooling of hot rolled strips. The ROT temperature control is one of the most critical processes to ensure mechanical properties of steel strips in TSCR mill. It was a challenge for the Fabrication, Machining and Assembly to meet the stringent requirement of M/s SMS in order to achieve the required coiling temperature. It required precision machining of the water manifolds which was done for the first time at TGS, to achieve radio-graphically tested stainless steel columns with universal joints and ensure perfect laminar flow of cooling water so that the strip cooling rate characteristics are uniformly maintained.



Laminar Strip Cooling System

TGS to add the latest version of CNC Plano Milling Machine.

TGS is adding a state of the art CNC Plano milling machine with all the latest features. The machine has added features to prevent the commonly encountered delays in the machine shop e.g., set up time, tool changing time and delays in attachment change. To reduce the setup time twin pallets have been provided- one which could be used to set up the next job and the other to hold the current job on which machining operation is performed. The pallets can be loaded or unloaded automatically without any external help. The machine is equipped with automatic tool changers and attachment changers to prevent delays in changing tools and attachments. The machine will further enhance the capability of TGS to meet the stringent quality and delivery requirements of the customers.



CNC Plano milling machine

News From Manufacturing

Energy Conservation Measure

Light pipes have been installed in shop floor at TGS in an effort to continuously conserve energy. The light pipes divert sunlight from outside the roof with the help of mirrored pipe and transparent convex fiber covers to illuminate the shop floor. In normal sunny days it produces light illumination of 8000 lux in an area of 1000 square feet. It is estimated that one light pipe will save electricity to the tune of approx. 1800 KW hr. per annum.



Light pipes installed in shop

Takao Kasahara Visits TGS

Mr. Takao Kasahara, MD, Streamline Strategy Japan Inc. and a well known expert on manufacturing excellence visited TGS for two days to assess the potential areas for improvement in manufacturing processes. Known for his result oriented approach, Mr. Takao has been supporting many companies in India, such the TVS group, Godrej & Boyce Group, Thermax, TAFE, and many other engineering companies since the last two decades.

During his visit, he surveyed the plant operations and interacted with the Senior Management team and a cross section of officers, supervisors and workers and suggested ways and means to improve the plant performance.



Mr. Takao Kasahara with Sr. executives of TGS

TGS Provides Inspection Services to Tata Steel

TGS has been entrusted with the task of inspecting the equipment ordered on the Chinese suppliers as part of Tata Steel's 3.0 MTPA expansion programme. Officers of TGS have visited various locations in China e.g., Sino Steel, Dalian Heavy industry, Tianjin etc. to carry out the inspection of equipment. The visit has also provided the opportunity to interact with the Chinese counterpart and understand some of the good practices in those plants which can be further explored for implementation in operations and maintenance.

News from Erection and Commissioning

Skip Bridge of LCP Erected

The erection of the Skip Bridge for the Lime Calcining Plant was completed at the LCP site. The Skip Bridge is meant to charge Kiln No. 8 with limestone from the Screen House. The 55 tonne bridge with a height of 55 metres, inclined at 20 degrees, was completely designed by TGS. This was the first time that TGS has designed this equipment in-house. The total erection time was 20 days for the complete structure.

KPO Update

TGS is playing a major role in the growth plans of Tata Steel. For Tata Steel's upcoming 6.0 Million Tonne plant at Kalinganagar Odisha, TGS is the key supplier of major equipments. There are three major packages namely, Steel Melting Shop, SMS Cranes and Hot Strip Mill. For Steel Melting Shop equipment, the technology is supplied by M/s SMS, whereas for Hot Strip Mill equipment the technology has been provided by M/s Sojitz and Mitsubishi. For the cranes, TGS is using its own in-house design.

Safety

CCTV to Provide Safety Surveillance at TGS

Safety of people has been the key thrust area at TGS. To provide a further boost to the safety performance, electronic surveillance by means of CCTV connected to cameras in the shop-floor has been provided. There are 21 cameras in operation which provide pictures on CCTV screen monitored from a central location in the Machine Shop. The multi-screen monitor displays area wise pictures which are recorded 24x7 and can be retrieved later for analysis and review. This is a unique initiative undertaken by TGS to promote safe behaviour through cross learning of good practices and initiating corrective measures for unsafe acts and conditions especially for the commonly accepted unsafe practices.



Safety Surveillance through CCTV Screen

Safe Working at Height

Working at height poses a potential for serious injuries due to fall. While several initiatives have been taken at TGS to prevent any such eventualities such as PPEs, awareness sessions to employees, site audits to enforce safety practices while working at height etc., this has been further reinforced with the deployment of the state of the art mobile scaffolding procured from M/s Genie- a Terex company. The equipment provides safe access for working at height thereby minimizing the chance of accident due to fall from height. Three such equipment have been deployed- two at TGS Gamharia and one at the site in Tata Steel Works.



Mobile scaffolding

Training

Virtual Welding Machine Commissioned at the Training Centre

A state of the art virtual welding machine was commissioned at the Training Centre, Gamharia. The welding machine provides an instructive learning on a touch screen to enable the operators to enhance their skills of GMAW (Gas and Metal Arc Welding) process in a classroom environment. The machine has a playback facility which provides the opportunity to a welder to personally observe and pin point his areas for improvement. Through successive attempts the welder can improve his welding speed, stick out & torch angle and enhance his skill to produce quality welding beads having less spatter and better penetration. Thus, the welding skills can be honed in a classroom environment which would facilitate producing quality output on the job.



A trainee working on virtual welding m/c

Reward & Recognition

Two SGA Circles of TGS Qualify for the MD level Competition

Two SGA Circles of TGS - Aviskar from Maintenance and Wotan 323 & TOS 326 from Machine Shop qualified for the MD Level competition for FY'11. The Aviskar team was selected for their project on "Controlling the downward movement of the cutting torch in Facor cutting M/c after stopping of operation" while team Wotan was selected for their project on "Reducing the machining time for ROT rolls" They now vie for the top honours with the SGA Circles of the other divisions of Tata Steel. This is the first time that an SGA Circle from TGS has qualified for the MD level competitions. TGS Inside-Out congratulates both the teams and conveys best wishes for the MD level competitions.



Members of SGA circle Aviskar (left) and Wotan 323 & TOS 326 at the MD level competition in Steelenium Hall.

Reward & Recognition

Our Star Performers

June:

For the month of June, Mr. Baleshwar Sharma, Foreman and Mr. Umesh Prasad Singh, Chargeman both from Mechanical Maintenance and Mr. R.K. Singh, Foreman, Preparation Section were recognized as the Star Performers. Mr. Baleshwar Sharma was recognized for his contribution in planning and execution of counterweight repairing work of Skoda Machine while Mr. Umesh Prasad Singh's contribution in preventing machine down-time by repairing the chuck jaw of Dinichi CNC Lathe was recognized. Mr. R.K. Singh's role in preparing counterweight using off-cut material won him this accolade.



Mr. Umesh Prasad Singh



Mr. Baleshwar Sharma



Mr. R.K. Singh

July:

Mr. Nirmal Kumar Satpathy of Fabrication, Mr. Y. Mishra, Machine Shop and Mr. Binod Kumar Roy of Stores were the Star Performers for the month of July' 11. The award was given for their outstanding contribution in their area of work.

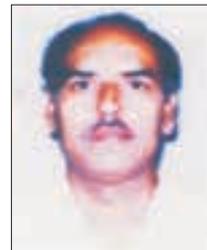
Mr. Satpathy developed the process for hardfacing two rolls simultaneously thereby drastically reducing the cycle time of hardfacing of rolls. Mr. Y Mishra was recognized for his efforts in developing special tooling arrangement for drilling operation and Mr. Binod Kumar Roy did an outstanding job in developing a system to visualize the usable off-cut materials leading to increase in utilization of off-cut material.



Mr. N.K. Sathpathy



Mr. B.K. Roy



Mr. Y. Mishra

August:

Mr. Subir Mandal, Supervisor, Design Cell and Mr. Suresh Singh, Chargeman, Mechanical Assembly were adjudged The Star Performers for August' 11. Mr. Subir Mandal received this recognition for preparing the 3-D Models for KPO Blast Furnace Shell; while Mr. Suresh Singh was recognized for his contribution in overhauling of HSM Mandrel Assembly.



Mr. Suresh Singh



Mr. Subir Mandal

Congratulations!!

Independence Day Celebrated in TGS

Keeping with the tradition of TGS, the Independence Day was celebrated with much fervor in TGS. The venue saw the unfurling of Tricolor by the Chief Guest, Mr. Gyan Ratna, Chief (Manufacturing) amidst an impressive gathering of employees, both permanent and contractual. The Chief Guest took guard of honor and inspected the parade. The School Band from Vidya Jyoti School played the National Anthem as the Flag was unfurled.

The occasion also saw 29 employees being recognized for serving the Steel Company for a period spanning between 20 to 40 years. They were awarded with wrist watch, time piece, silver medal and gold plated medal commensurate with their length of service.



Chief Guest inspecting the parade



Employee being felicitated with Long Service Award

ERP System Upgraded

Growth Shop Upgraded its ERP system to higher version called ERP LN to redress the issues, relevant to its business processes and present and future requirements. The existing Baan system was in operation since November, 2001.

A Team of 7 Key Users representing various functions of TGS e.g., Finance, Design, Manufacturing along with the TGS IT Team worked for nearly 17 months for the successful completion of the project.

The new system has been designed for toning up of business processes, improved system controls, simplification of user processes and user-friendly system, highly improved query, statistics, MIS and better integration between project planning, manufacturing, scheduling and costing.



EIC (Growth Shop) inaugurating ERP LN

Workshop on Nuclear Energy

With the growing demand of power, the Government of India has enunciated a Nuclear Energy Programme wherein it aims to supply 25% of electricity from Nuclear Power by 2050. To explore the opportunities in this sector, a one day workshop was conducted on 26th August, 2011 in Mumbai which was attended by senior executives of Tata Group. Four cross functional teams were formed to study the contributions that can be made by the Tata Group in the Nuclear Energy Sector. Growth Shop has been assigned to study the avenues related to manufacturing and associated technologies including the need to form arrangements (JV/ technology collaborations) with the companies having design. The preliminary study has been done and the report submitted for further deliberations.

People & Relationships

Corporate Social Responsibility

Jagriti has been arranging cataract operations, for poor patients in collaboration with Ram Krishna Mission. Medical camps are organized every week at Durang, near the Kandra railway station. Free medicines are distributed in these medical camps.

In addition to the above, Jagriti has been organizing blanket distribution among poor cataract patients in collaboration with Ram Krishna Mission. Jagriti has also been sponsoring the education of seven tribal students.



Cheque for sponsorship of tribal children for education Distribution of blankets to poor cataract patients

Interaction with the cataract patients

Since 2009, Jagriti has taken the initiative of organizing free medical check-up for the school-children. Each student of Jagriti School has been given a medical card. The medical checkup is being done regularly for these students.

Jagriti also organized spoken English classes in the Jagriti School premises where at least 20 students from the nearby villages and the Tata Adityapur Complex had enrolled for these classes. Music and art classes are also conducted in the school premises every week.



Music Class



Health Chekup

Apart from social welfare activities, Jagriti provides entertainment and knowledge sharing sessions by doctors and eminent citizens from other walks of life for the ladies of Tata Steel Adityapur Complex Colony, Gamharia. Shows for children, cookery shows, talks by eminent persons have enriched the lives of the women audience. A recent such session on gynecological problems of women after the age of forty was very enlightening for the audience. Festivals and functions of relevance are celebrated by Jagriti every year.



Celebration of Saraswati Puja by Jagriti

In addition to the above, Jagriti provides entertainment and knowledge sharing sessions for the ladies of Tata Adityapur Complex colony, Gamharia.



Social Activities in Jagriti

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