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ENGINEERING FOR EXCELLENCE



Isgec Heavy Engineering Ltd is a diversified global engineering company based in India. Established in 1933, Isgec has grown from its roots as a sugar mill into a Rs.4600 crore multinational company providing engineering products to customers across 87 countries. Sanjay Awasthi, Business Head of ISGEC Sugar Plants & Machinery vertical, talks to the editors at AIM Global Magazine about ISGEC's history, its diversified operations, and the mammoth projects undertaken by the company.



Overview

Giving a brief overview of the company's vast scope, Mr. Awasthi says, "Our core value is *engineering for excellence*. At ISGEC, we use our skills as qualified, world class engineers to achieve excellence in everything we do, in order to make it easier for our clients to fulfill their vision. We have a diversified range of business verticals that cater to a wide variety of sectors like Automobiles, Chemical, Power, Defense, Sugar, Oil & Gas to name a few. Our core businesses are Sugar Plants & Machinery, EPC Projects, Boilers, Power Plants, Distillery Plants, Process Equipment, Presses, and Steel & Iron Castings. We have undertaken projects and supplied products to over 87 countries. We have worked with more than 80 of the Global Fortune 500 companies. Today, we have a strong workforce that includes 900 engineers, and have a long and stellar track record of executed projects. We can manufacture and mark the equipment with ASME, DIN, CE, or any other standard from across the world."

Growth through Technology

Discussing the illustrious history of the company, Mr. Awasthi says, "Our company was started in 1933, with a sugar mill and

a workshop in the northern part of India, 4 hours from Delhi. In the 83 years since we were formed, we've developed into a Rs.4600 crore well diversified engineering company. Initially in 1933, ISGEC owned the Saraswati Sugar Mills, with a sugarcane crushing capacity of 400 Tonnes per day. This has grown into one of India's largest sugar mills and now crushes 13,000 Tonnes per day, and is today a subsidiary company. At the time of India's independence, the Indian capital goods industry was weak. At that time, most plants and factories utilized machinery and technology from the west, either out of Europe or America. There were very few Indian companies which could service these machinery or supply the right equipment that our industries needed. Seeing this opportunity, ISGEC took the lead and ventured into manufacturing. The initial activity was the manufacture of spares for sugar mills. In the course of time, the company diversified into a wide range of engineering products. In 1964 we established a joint venture with John Thompson of the UK to form Isgec John Thompson, in order to ensure that India would eventually learn to be self-sufficient in boiler technology. In 1981, we acquired majority shares in Uttar Pradesh Steels. Both units were subsequently absorbed into

our parent company. In 2011, the company name was changed from Saraswati Industrial Syndicate Ltd. to Isgec Heavy Engineering Ltd. with all businesses consolidated and now marketed under a common brand name – Isgec. Today, we're listed on the Mumbai Stock Exchange and are part of Fortune 500 Companies in India". Mr Awasthi gives credit for the steady growth of the company to Mr Aditya Puri, their dynamic Managing Director who has steered ISGEC to its position of strength.

According to Mr.Awasthi, "the company has always believed in collaborations to increase learning, adapt new technology, and to leverage brand identities that help in working on a larger scale. Over a period of time, we have gone in for numerous collaborations. Presently we have strategic technology partnerships with Amec Foster Wheeler North America Corp, USA; BOSCH Projects, South Africa; Envirotherm GmbH, Germany; Fuel Tech Inc., USA; NEM Energy b.v Netherlands; ABB Lummus Heat Transfer, USA; Belleli, Italy and Neuson Hydrotec, Austria as well as joint ventures with Amec Foster Wheeler North America Corp, USA; Hitachi Zosen Corpn., Japan and TITAN Metal Fabricators, USA".

Billion Dollar Projects

Discussing the wide range of ISGEC's manufacturing capability, Mr. Awasthi says, "We are arguably the best company globally in the sector of sugar machinery, in terms of energy efficiency of our plants and the technology we use. We have supplied more than 600 mills, and completed about 130 EPC projects. In 2011 we commissioned one of the most prestigious and largest Sugar Projects anywhere in the world. The White Nile Sugar Ltd., Sudan, which had an overall investment outlay of USD 1 Billion. Our share in terms of business was in the range of USD 300 million. It's a plant with the capacity of 24,000 Tonnes of cane per day, with 520 Tonnes of boiler capacity, and

104 megawatt of power generation. This plant produces direct white sugar of EU Grade 3. We're proud of the fact that we finished setting up and began production in a record time of 22 months. This was one of our biggest challenges, since it was on a bigger scale than has ever been attempted before in a greenfield project anywhere in the world. In addition to creating a large project, we're proud that this plant is one of the most energy efficient plants in the world, as it runs on only 30% steam consumption and works with a very high efficiency."

Booming Boiler Sector

Expanding on the group's work in the boilers, Mr. Awasthi says, "In the boiler vertical, we've supplied 675 high capacity and high pressure Boiler installations across 40 countries. We're approved by Lloyds as a Class I fabricator of Fusion Welded Pressure Vessels up to 300 mm (12") thickness, and have several accreditations from international institutes that certify our quality. Recently the Company has ventured into Heat Recovery Steam Generators, Slop / Vinasse Fired Boilers, Waste Heat Recovery Boilers, and Pin Hole Grate Boilers. In collaboration with Amec Foster Wheeler we provide Pulverised Coal Fired Boilers upto 1000 MW capacity in the Supercritical range. We are entering into the Municipal Waste Boilers also. A number of orders have been received by us for Boilers firing highly polluting Distillery Effluents. These Boilers have been engineered in-house. The Indian Government has recently decided to implement a 'Zero Effluent Discharge' policy for Distilleries, also it has announced the 'Swachh Bharat' (Clean India) initiative, wherein 200 cities have been identified to be converted to smart cities which will burn all their municipal waste to produce electricity. In this way waste is eliminated and clean energy produced. With these policies





in place, we believe we will only grow stronger in the future.”

Epic EPC Projects

Discussing the EPC projects completed by the company, Mr. Awasthi says, “The demand for energy has never been greater and we are geared up to deliver solutions for power and energy demands. We provide complete EPC solutions from concept to commissioning. Today, the company has set up about 35-40 Power Plants all across the world. We offer customized solutions with our standardized power plant designs to provide optimum results. Our skilled manpower is available to execute any greenfield or brownfield projects, and our collaborative approach with associates for critical bought outs and systems gives us an edge. Finally, our proven experience with Boiler technology such as CFBC, AFBC, Traveling Grate, Oil & Gas Fired Boilers is a big advantage. To date we have executed projects totaling to 670 MW and we are currently executing projects totaling to 440 MW.”

Other Verticals

“Isgec has a very diversified portfolio of products. Apart from EPC Project businesses that include Sugar Plants & Machinery, Boilers, Distilleries and Air Pollution Control Equipment, Isgec is also a big name in the manufacture of Steel & Iron Castings, Mechanical & Hydraulic Presses, Process Equipment, as well as Contract Manufacturing. We have two Foundries that produce

Castings that are as large as 50 Tonnes in single piece. Global giants such as TYCO, Siemens, ABB and Ansaldo regularly place orders for their required equipment such as turbine casings and hydro turbine castings from us. In recent years we have started making Valve Castings too. What makes our Foundry stand out is our ability to produce Castings of very high quality and in exotic material that goes way beyond the standard metallurgies. The foundry was set up by Kobe Steel Japan, but is now wholly owned by Isgec.

Isgec has been in the business of Mechanical and Hydraulic Presses for the past 5 decades and is a dominating force, especially in the automobile sector. Isgec Presses can today be found working in plants across 23 countries that include Germany, USA, Spain, France, China & Brazil.

In the Process Equipment business too, Isgec is a global name. With a product range that includes Shell & Tube Heat Exchangers, Hydro-Processing Reactors, Coke Drums, Columns, Ammonia & Urea Convertors, Surface Condensers and Heaters, Isgec has been successfully catering to the requirements of Oil Refineries, Petrochemical, Fertilizer, Power & Chemical Industries.

We are also the largest manufacturer of Liquified Gas Ton Containers in the world. These are used for the storage and transportation of hazardous gases.”

Global Reach, Domestic Manufacturing

“Although we cater to customers globally, we have all our manufacturing facilities spread in various cities and towns across India. This includes our plant located at the coastal town of Dahej, in the state of Gujarat which has the provision for RORO barging and enables us to move equipment that is of very large sizes. Also, our large state-of-the-art Tubing & Piping facility near Yamunanagar, in the state of Haryana, gives us a distinct edge in our Boilers business.

Our overall business is evenly split between export & domestic orders. We have our customers spread across 87 countries, out of which the sugar and power businesses alone have serviced 45 countries. We have our headquarters in Noida, a suburb of Delhi, and our marketing, design, and execution offices, including our largest R&D centre, are all located here. We are registered vendors with almost all the relevant companies in our field of operation, all over the world, including government companies like Qatar Petroleum, Saudi Aramco, Toshiba, Hitachi. As I said before, we’ve probably worked with every relevant company in the global Fortune 500 list.”

Prestigious Projects, Efficient Execution

Asked about the recent projects that ISGEC has executed, Mr. Awasthi laughs, “There are too many to count! At the moment we have about 40 on-going projects outside India. In South America itself, we are working on 2 Sugar Plants in Peru, 2 Power Plant in Central America and 1 Power Plant in Mexico. We have recently commissioned one of the plants in Colombia. We have also recently supplied a Sugar Mill plant to Guatemala and commissioned 2 Boilers for Petrobras, Brazil. In USA, most recently we’ve supplied an Oil & Gas Boiler to West Virginia, and in Europe a Boiler in Spain which runs on olive trims. We have also supplied a Boiler to Nestle, China.

In Africa, besides the White Nile project in Sudan, we are currently executing a Complete Sugar Plant on EPC basis in Nigeria. We have recently commissioned one Bio-Ethanol Plant in Sierra Leone. We also have on-going and completed projects in Kenya, Ethiopia, Uganda, Zambia and Tanzania.

In South-East Asia we’re very active in the Philippines, recently completing a Bio-Ethanol Plant for 60 million dollars as an EPC project. We are executing another Bio-Ethanol plant of capacity 135 KLPD in the Philippines on EPC basis. We’ve done a Sugar Refinery and a port based Sugar Refinery in Vietnam. We are executing one stand alone refinery in



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Indonesia on EPC basis. We are also executing a Complete Sugar Plant in Indonesia. We've done a lot of work in Thailand and Indonesia. Finally, on the domestic front, we are doing state-of-the-art Plants for Sugar & Ethanol production on EPC basis all over India. Currently we have 2 ongoing projects for Hindustan Petroleum Corporation; a Corporative Sugar Plant for the Uttar Pradesh State Government; and various projects in Maharashtra and Karnataka. We also have 5 ongoing Distillery projects – 2 for a Co-operative Sugar Plant for the Uttar Pradesh State Government on EPC basis, and 3 for other Indian customers. Our clients include India's largest companies such as Reliance, Hindustan Petroleum, and NTPC. Predominantly, the sectors we operate in have private companies working much more actively than government owned companies, but we have worked a great deal with both kinds. But what brings real satisfaction to us is when we get a repeat order from an existing or past customer because that is proof that they were more than happy with our past work. Fortunately this happens quite often."



Overcoming Challenges

Discussing the challenges faced by the company, Mr. Awasthi says, "Our biggest challenge in any project is adapting quickly to a new geography since we are working all over the world. Each new country has a new challenge in terms of manpower, visa permits, taxation, custom clearances and logistics. Logistics is especially troublesome because we export plants that entail 5000-7000 Tonnes of shipment. And it is this very challenge that has made us hone our capabilities and become experts in project execution and planning. We have sharpened our skills to such an extent that we ensure that our material is supplied in a sequential manner and erected with a definite preset method and on time. We have highly experienced project execution teams that mitigate any risks for the clients and for ourselves. For us it is critical that our customers do not suffer in terms of any delays for any reason whatsoever.

All this pays off when our customers give us their feedback. Some clients have said that with our quality, timely performance and project execution skills, we are the 'BMW' of the sugar industry". During the conversation with Mr. Awasthi, it was evident that the company takes a lot of pride in the quality of its human capital which includes 900 engineers. In fact, Mr. Sanjay Awasthi himself, apart from being the business head of Isgec's Sugar Plants & Machinery business, is also the President of the Sugar Technologists' Association of India. He represents his country as a Counselor at the International Society of Sugar Cane Technologists and is also on various government committees.

Future Plans

Discussing the company's future plans, Mr. Awasthi says, "We are a very young team of engineers in the company, with an average age of 35 years and are all enthusiastic about taking our company, and by extension India, to new heights. We have a great appetite to take on new challenges in the EPC and Project Management sectors. We want Isgec's name to be synonymous with sugar mills, and with our focus on using our engineering skills to strive for excellence, someday, we will surely achieve our ambition."



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