

# RKFL: Forging world class capabilities

The Indian forging industry is today well recognised globally for its technical capabilities and has emerged as a major contributor to the manufacturing sector of the Indian economy.

A recent research report by Technavio says the global forging market during 2016-2020 is set to exhibit a healthy CAGR of around 8%. Forging is an appropriate substitution to the casting methodology as it ensures greater efficiency, reliability, and precision. Custom forging accounts for the largest segment, the products manufactured as per the requirements of the end user industries. Some of the major end-users of the forging industry include automotive, aerospace and defense, agriculture, construction, mining, general industrial equipment, and material handling equipment to name a few.

This industry research report outlines the automotive sector as the major end-user for the forging market. Characteristics associated with forged parts such as reliability, strength, and economic viability have increased the importance of the use of forged parts in this sector. But with the automotive industry reaching a mature stage in the forging market, it is expected that other non-automotive sectors will mostly contribute to the growth of the global forging market until 2020.

According to the Association of Indian Forging Industry (AIFI), the Indian forging industry is today well recognised globally for its technical capabilities and has emerged as a major contributor to the manufacturing sector of the Indian economy. It is a key element in the growth of the Indian



Forged products.



M P Jalan, Chairman (left) and Naresh Jalan, Managing Director, Ramkrishna Forgings Limited.

automobile industry as well as other industries such as general engineering, construction equipment, oil, gas and power. With an installed capacity of around 37.7 lakh MT, the Indian forging industry has a capability to forge variety of raw materials like carbon steel, alloy steel, stainless steel, super alloy, titanium, aluminium, etc.

The forging industry is broadly classified into five segments: Very Large (capacity above 75,000 MT); Large (capacity above 30,000 to 75,000 MT); Medium (capacity above 12,500 to 30,000 MT); and Small (capacity above 5,000 to 12,500 MT); and Very Small (capacity up to 5,000 MT). Based on this classification it is seen that about 87% of the total number of units are small and very small, while only about 5% can be classified as very large and large units; the balance of about 8% constitute the medium sized units.

The Indian forging industry is concentrated around its end user customer locations. Therefore, the major forging clusters are found to be in the states of Jharkhand Maharashtra, Punjab, Gujarat, Tamil Nadu, Haryana, Delhi, Karnataka, Jharkhand, West Bengal and Andhra Pradesh.

Kolkata based Ramkrishna Forgings Limited (RKFL) is a 35 year old forging company. With clear focus and determination, the activities of the company span a wide array of product development, manufacturing and customer experience improvement activities. To this end, it concentrates on exploring new avenues, providing insights, and the latest tools and methodologies to support the manufacturing technology and product innovation advancements that are required to become more successful. The target is to become No. 1 in the forging industry. The company was promoted by Mr M P Jalan in 1981, now the Chairman, and is led by Mr Naresh Jalan – Managing Director.

RKFL manufactures forged products for automotive, railway, defence, farm equipment and general engineering sectors. The company has the facilities to undertake various types of forgings, which include:

- Closed die forgings – from 2 kg to 125 kg single piece, the facility equipped with 5 drop hammers from 0.5 T to 3 T capacity and 3 air hammers from 3 T to 6.5 T capacity.
- Upset forgings – started with one upsetter and at presents has 2 up

setters, 6" and 5", and in the process of adding up one more range which will be 4".

- Ring rolling – a brand new state-of-the-art fully automated technology from SMS Meer – Germany known as Wagner Banning Mill to manufacture ring rolled components from 30 kg to 75 kg in weight, OD 500 mm with yield up to 90% with a production capacity to roll 3500 rings per day and 12 million rings per annum.
- Press forgings – a fully automated line equipped with various state-of-the-art machines and presses ranging from 12500 T, 6300 T, 4500 T, 3500 T and 2000 T, and a 12,500 T wedge press with a fully automated robotic line.

According to Naresh Jalan, in future, the company will be moving towards Warm and Near Net Forgings which will bring a new dimension in the forging world. Some of the salient features and principal advantages of Near Net Forgings are:

- A reduction in the number of processing steps
- Significant reduction in the amount of waste material generated
- The ability to easily produce intricate and complex geometries direct from computer aided design (CAD) models
- Rapid design iterations and ease of part customisation, and
- The possibility of utilising materials that would otherwise be extremely difficult to process.

Key industries already using these techniques include:

- Aerospace – engine and airframe components
- Motorsport – weight critical components with high temperature requirement.

RKFL always believes in new technologies, which are cost effective, excellent quality and environmental friendly. As far as development in forging technology is concerned these are orbital forging, cross rolling, cold and warm extrusion. Automation of forging press and hammers are also form part of this. Advancements in the field are also taking place in the area of CAD/CAM where the die development time is considerably reduced. This will help in new product development.

The company is TS 16949, OSHAS 18001 and ISO 14001 certified, making its products and processes compliant with the stringent requirements of global user industries. "We use state-of-the-art technology to reduce wastage at every possible aspects like at present we have introduced circular saw machine for cutting raw material instead of searing band saw, induction heaters with optical pyrometers against oil fired furnaces, new technology for forging like ring rolled and press forging on wedge press concept for higher yield (input to output). Further new technologies are being added like warm and near net and all these are efforts towards creating a better environment," says Naresh.

RKFL uses various processes and its manufacturing capabilities are available for jobs ranging from 2 kg to 250 kg by any process suitable for hammer, press, upsetter and ring rolled, duly heat treated like normalised, ISO annealed, carburised sealed or press quenched induction hardened or even control cooled and in fully machined and assembled condition.

In today's scenario it has been noted that the Indian forging units are producing good quality forgings and exporting these across the world to establish a global footprints. But that does not mean that India is totally self-reliant in this field as in order to strengthen itself the company is procuring machinery and modern and updated technology from foreign markets. "By doing so we are also becoming competitive in the overseas market and trying to build up the brand image of RKFL as best Indian forging supplier for quality and competitiveness," says Naresh.

Expanding business is an exciting proposition. It means its doing well and ready to grow to the next level. But often a business needs financial support to implement expansion ideas. A professional business plan that outlines the expansion details can earn the money needed to grow the business, which RKFL has done successfully throughout these years. Not only it is a perpetual successful business organisation in terms of revenue and expansion of facilities but also it has shown progression in educating and uplifting its employees in a bigger manner.

Rationalising the rewards of a bigger business means tuning up our business

plan writing skills again. We have re-crafted our marketing plan and strategize an expansion implementation plan.

Naresh Jalan has spearheaded the recent expansion drive at RKFL, very carefully weighing the risks and rewards for growth. Some of the steps in this direction include:

- Setting Plant 5 as a turning point to the thought process of the various clientele with updated technology for die making, painting and various testing facilities which are readily available under one roof
- A fully automated press line after the ring rolling plant, and
- Successful financing of the massive expansion project now on the verge of completion. Phase wise production has already started and the revenue from the same has been generated.

This expansion has been widely appreciated by all major commercial vehicle OEMs and Tier 2 companies not only in India but worldwide. It is noteworthy that even before the start up the order booking position has been excellent, an indication of the customers' faith in the company as a strong supplier in the field.

The company's vision to become a one-stop-solution for CV industry now appears to be complete as it now has the capacity to manufacture and supply all forgings required in any CV whether the front axle, engine, gearbox, transmission or the rear axle. Harnessing the power of innovative technology by introducing a new press line has played a vital role in enhancing the product line up for the automobile industry to produce items like front axle beam, crankshaft, connecting rods and knuckles for catering the various needs of clients.

"Come, Make in India," said Prime Minister Narendra Modi in his maiden Independence Day address in 2014, inviting global firms to set up manufacturing bases in India, as part of his biggest push to fix in one go multiple economic problems including low employment creation, slow economic growth and high trade deficit. RKFL is already engaged in this endeavour and is open to work with global majors in the field, forging relations by signing joint ventures or MOUs for technology transfer, in the process acquiring world class capabilities to Make in India. ■