

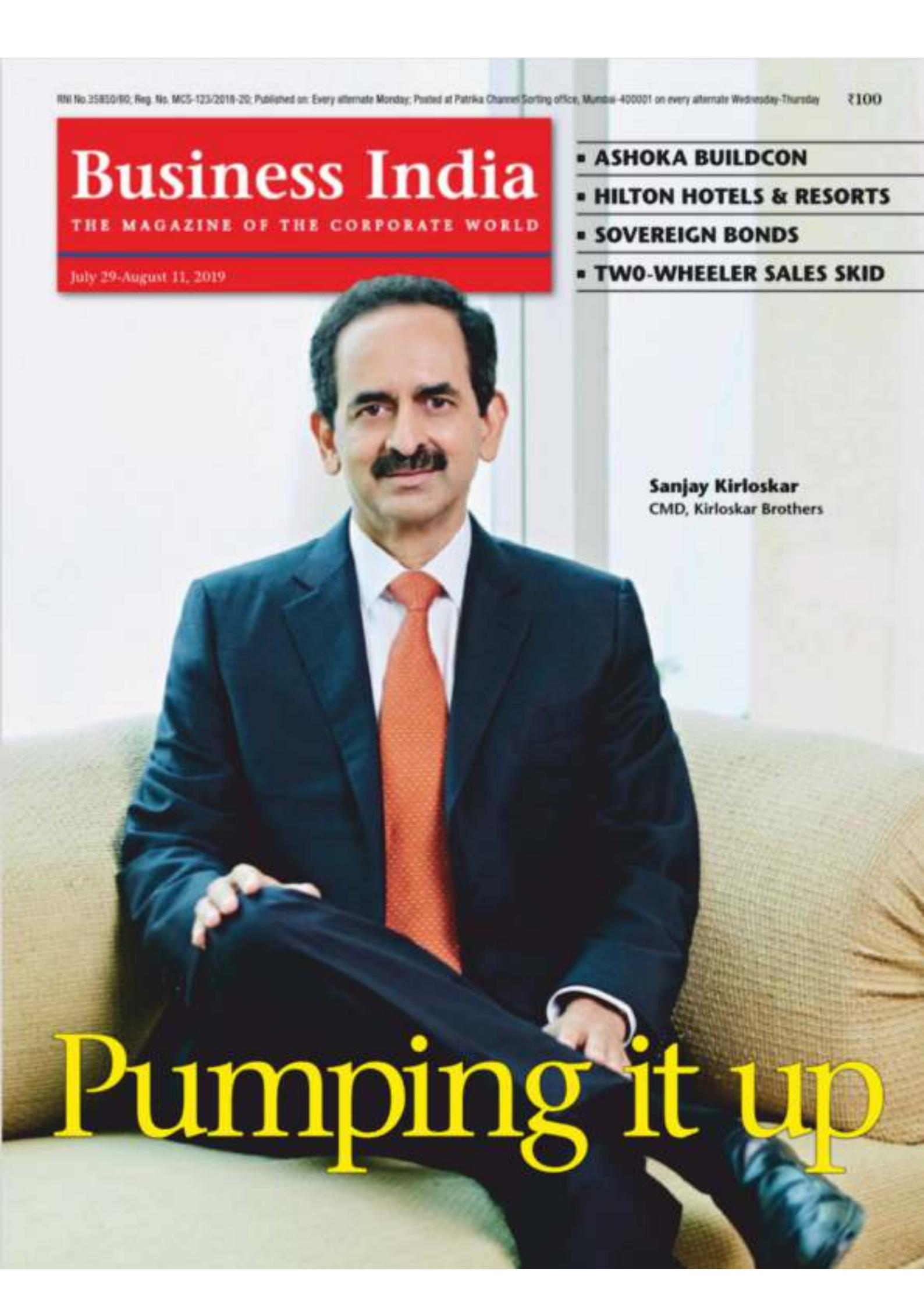
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Sanjay Kirloskar
CMD, Kirloskar Brothers



Pumping it up

Pumping it up

As it completes 130 years since its humble beginnings as a bicycle shop and enters its centenary year as a registered company, this Pune-headquartered company looks at the next generation to take it forward into its next phase of growth



The first family of KBL: Rama, Pratima, Sanjay and Alok Kirloskar

Research and development for products, new technologies for innovation and a strong value system across the organisation will be the prime focus areas for the ₹2,000-plus crore Kirloskar Brothers Ltd (KBL,) according to its chairman and managing director Sanjay Kirloskar (62 years). "The history packed into the 100 years of the company has many milestones that are a part of the legacy that we have inherited," Kirloskar said at the launch of the centenary of the pumps major's incorporation as a public limited company.

The company, which actually traces its history back 130 years to the day Laxmanrao Kirloskar set up a bicycle shop in Belgaum in 1888, was officially registered as a legal entity on 15 January 1920. Beginning from the first Kirloskar product, an indigenous chaff cutter made in 1901 followed two years later by an iron plough which became a tough competitor to the British ones, has had a tradition of innovation ever since then.

As the fifth generation of Kirloskars, Sanjay and Pratima's children Alok (34 years) and Rama (29 years), prepare to take on the reins to take it forward into its next century – or the next 130 years – the new KBL group etches a name for itself as an independent member of the erstwhile Kirloskar group (see box, Divided domains). With nine plants in India and seven facilities abroad, KBL today provides the industry with products and solutions in every sector and at most geographies around the world.

The only pump manufacturing company in India and the ninth in the world to be accredited with the N and NPT nuclear component certification from the American Society of Mechanical Engineers, it provides sodium pumps for the Nuclear Power Corporation of India's plants, cooling water pumps for the world's largest nuclear fusion experiment and canned motor pumps deployed at Indian Nuclear Power Plants for pumping heavy water. It has also installed the first open loop system for NTPC's (formerly National Thermal Power Corporation) Simhadri super thermal power plant on the outskirts of Visakhapatnam in Andhra Pradesh.



"Our pumps are everywhere!" says Alok

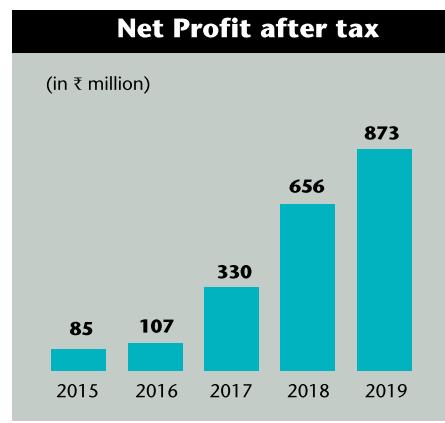
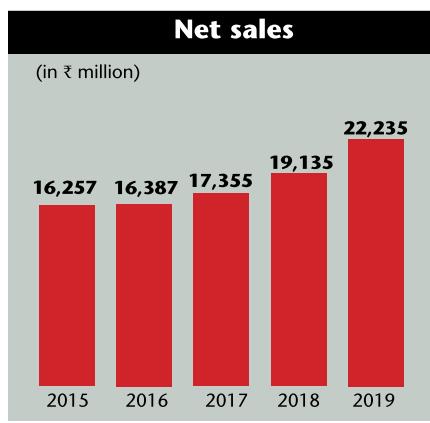
Customers for its lowest life-cycle cost (LLC) pump series include Delhi Jal Board, Gujarat Industrial Development Corporation and Maharashtra Industrial Development Corporation; other achievements include the fact that 90 per cent of Mumbai's water supply is done by KBL pumps, while farmers in faraway Himachal Pradesh use its solar pumps.

"The journey of Kirloskar Brothers over the next century will be about a smarter approach to product and service differentiation through adoption of disruptive technologies," says Alok Kirloskar, a B.S in business administration with concentration in finance from Carnegie Mellon University, Pittsburgh, who is the company's non-executive director and managing

director of subsidiary SPP Pumps UK, who also looks after KBL's overseas operations.

"KBL's technology blueprint, using a combination of Internet of Things (IoT,) Artificial Intelligence (AI), Virtual Reality and Augmented Reality (VR/AR), and 3D printing will enable us to innovate across the entire length and breadth of our fluid management systems – right from the deployment phase, to remotely monitoring and operating these systems and lastly to offering seamless and faster after-sales services."

The 3D printing technology, for instance, will allow the engineers to create a mould within minutes instead of the 70 hours or so needed if they use the traditional method. This will





Rama was passionate about biology, but enjoys working in the family business

be particularly useful in a case where they need to make a prototype to check the feasibility of a new pump model which has no customer yet. It has already been used to print wings for an Airbus aircraft. "It is the world's largest," Sanjay adds. "We are the only pump company in the world to have developed such a printer, working with a German company."

Moulds and cores are also created with enamel in a patternless process are many times more accurate than with the earlier manual patterns. On top of that, a single-use mould does not need to be stored in case it is ever needed again: the drawing on the computer system is enough to replicate it if required.

As for SPP, which had a market share

of 'close to zero' when the Indian company took it over in 2003, now commands a whopping 90 per cent of the European water market, Alok says. "Our pumps are everywhere: in high-rise buildings like the 830-metre Burj Khalifa in Dubai, all over London, power plants from the US to Thailand and Indonesia," he adds. "We also have concrete volute pumps – the casting and suction draft tube of which are cast in-situ concrete with a rotating metallic part – which can handle a large flow, especially of sea water – and storm-water pumps that can pump out up to 30,000 litres a second, so big you can drive a truck through one!" Adds Sanjay: "We have huge pumps that run 24x7 for critical applications like water supply and in oil refineries."

Enabling environment

Rama Kirloskar, MD of the Indo-Japanese joint-venture Kirloskar Ebara Pumps and also a non-executive director of KBL, stresses the need for improving engineering skills at the grassroots level so that Indian industry can "create an enabling environment to help the next generation of Indian engineers achieve their rightful place in the world". The company her father heads has been working extensively on skill-set creation and training programmes in colleges around the country to teach students modern systems and processes that are relevant to today's industrial needs, she says, adding that all industry leaders should work to create a large trained workforce and quality engineers and help realise the 'Make in India' dream.

Rama, who studied mathematics and biology and went to the Massachusetts Institute of Technology where she studied bio-engineering and presented a paper on a dengue vaccine, came back to KBL. "MIT was fun, I was passionate about biology. But with clinical trials taking as long as 10 to 15 years, I realised that I would get a better ROI (return on investment) in the family business," she explains. "My father said, 'I can use your math – not your bio!' So I got into R&D, product portfolio management and market research. It was a very good induction process."

She became interested in pumps, and Sanjay gave her the Ebara JV to

Woman power

In Asia's pumps capital Coimbatore in Tamil Nadu, Kirloskar Brothers Ltd set up all-woman pump manufacturing plant in 2011 as an experiment to see how women would perform on the shop floor. Eight years later, it has grown to a workforce of 180 operators, who not only run the operation producing 80,000 pumps a month using the principles of lean manufacturing and just-in-time purchases. "We are planning to go up to 100,000 as demand keeps growing," says U. Lakshmi, plant head and general manager.

Not only this, the unit – the group's smallest, but producing the highest volume – has entered the Limca Book of Records for its achievement in assembling a pump in just 17 seconds. The secret? "We were given a higher target, which could have meant a night shift operation," a woman at one of the 35 workstations says. "The second shift, which was introduced in December 2017, is no problem – we get dropped back home. But coming to work at night is difficult, especially for

those of us with families."

Adds Lakshmi: "All the employees do both shifts in rotation; there is no bias. They don't face any problem, because the people of Coimbatore are good, respectable types. We also have a vehicle to pick up workers from the Kerala border nearby: about 15 of them come from the neighbouring state." Most of the others, however, live in the village nearby. With an average age of 30, many of them are married and have children.

The unit, which she describes as 'a flat organisation with a very lean structure', currently makes 30 models of what are termed 'small pumps' – of 0.5 horsepower and 1 hp. It is one of the three such units under the KBL umbrella, which make small domestic and agricultural pumps, the other two being in Dewas (Madhya Pradesh) and Sanand (Gujarat). "The market is ample," says Nirmal C. Tiwari, vice-president & business head, small pumps. "We are now targeting the export markets." The Coimbatore plant, on its part,



Lakshmi and her team are showing the world what women can achieve

exports 15 per cent of its production directly.

Apart from the shortest-time record set by the Coimbatore unit, Lakshmi also points to the across-the-board accent

on quality, with Kaizen and manufacturing excellence systems in place. "Every motor is checked before it is packed for despatch," she says. "We have won 13 awards in one year!"

The women are also well-looked after: there is a hands-on Bodhi training centre which recruits have to attend for a week, and full-fledged creche for each shift. "It's a good place to work," says production assistant K. Saranya, who used to work in a mill earlier and joined the year the plant was set up. Four years ago, she moved up to 'fixed-term' employment by developing the necessary skill level. A. Amutha, who joined on a contract in 2012, agrees. "I have stayed on because it is a good company," she says.

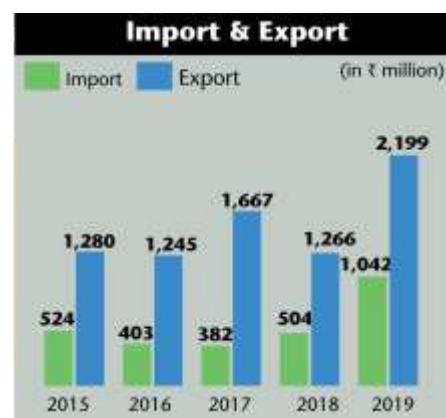
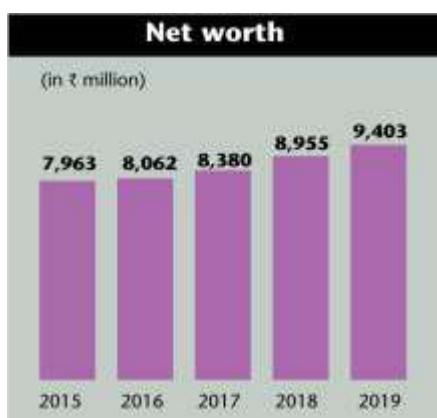
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run, manufacturing pumps for application in the oil and gas industry using turbo-generators of up to 25 MW, and other large, customised pumps. "I found it a completely different business from the small pumps I had come

into and become interested in; but I'm enjoying it," she says.

The centenary celebration, which had Ratan Tata as the chief guest and Dr Raghunath Mashelkar as the guest of honour, saw the unveiling of KBL's

roadmap for the future, which rests on the twin pillars of ethical growth leveraging breakthrough technologies. Tata also launched the company's revised 'Code of Ethics' – a document which, its CMD says, has been an integral part





Ratan Tata flanked by Sanjay, Rama and Alok, launches KBL's revised 'Code of Ethics'

of its functioning and has served as a barometer of its employees' value system. Hosts Sanjay and Pratima also felicitated two other special guests, Ravindra Pant and Dr. Motilal Ginde, whose forefathers had helped Laxmanrao Kirloskar in his efforts over a 100 years ago; he also released the English version of his great-grandfather's biography 'The Man Who Made Machines'.

Sanjay – who graduated with a B.S in mechanical engineering from the Illinois Institute of Technology, Chicago, in 1978 and underwent practical training in a number of Kirloskar group companies – took on in 1985 from his grandfather. SLK, who ran the company from 1936 and was instrumental in the innovation of India's first machine tool and electric motor

as well as expanding KBL's footprint in Europe, North America and South East Asia. Sanjay has not only expanded the company further but also seen innovations like canned motor pumps, solar pumps, concrete volute pumps and magnetic drive pumps and made it India's largest centrifugal pump manufacturer. An Indian multinational with a presence in 165 countries, manufacturing 75 types of pumps, KBL has made four global acquisitions in the past couple of decades, including SPP in the UK.

All under one roof

This globalisation began with SLK himself, who had bought the first company in Europe. Changing rapidly over the years since Mahatma Gandhi and Jawaharlal Nehru had visited

it, the company has been a believer in the 'make in India' philosophy since 1901, long before this became a buzz-phrase.

Today, KBL provides drinking water to more than 35 per cent of India's population while pumping water to more than 60 per cent of irrigable land for turnkey projects that include river linking, river lifting, water treatment, and irrigation projects. It also boasts a 45 per cent share of the world market for pumps on offshore oil and gas platforms.

At Kirloskarvadi – or Vadi, as everyone refers to it – where it all began, associate vice president Prasad Kulkarni points out that it is the only pump manufacturing facility which has everything under one roof. "We have a cross-functional team, which gets user feedback – especially pain points – and solve problems that crop up," says Kulkarni, who also heads the export excellence cell. "We have one of Asia's biggest testing centres attached to our Hydraulic Research Centre, with five test beds where we do 100 per cent hydrotesting at double the customer specifications to ensure that our pumps will stand up under any pressure conditions. All the site conditions are also simulated on a small scale before the pump is dismantled and shipped for assembly on the customer's site."

Nirmal C. Tiwari, vice-president and business head, small pumps, oversees the Dewas operations along with the two satellite plants at Sanand and Coimbatore. A design engineer with

Mangal meeting

Back in 1996, S.L. Mangla remembers, the eponymous pump manufacturing company he and his son Girish had set up 15 years earlier was facing a shutdown because business was terrible. "We had this image of a small assembly unit in the unorganised sector," he says. "A family friend, who was also our chartered accountant, suggested that we make it a 'limited' company to make the name look better. It worked!"

Mangla Engineering in Dewas, Madhya Pradesh, was the first company in the extended Kirloskar Brothers family to get ISO 9000 certification. Its founder rang up Sanjay Kirloskar the day he got it and Kirloskar promised to come for the award function, which he did.

Growing up in small-town Palwal in east Punjab in the pre-Partition days, Mangla went through bad times before completing his B Sc in engineering



SLK himself had said the Manglas could supply pumps with the KBL brand

25 years' experience in R&D, Tiwari is a 34-year veteran who joined KBL in 1985 as a graduate engineer trainee fresh out of the Regional Engineering College, Bhopal. Why has he stayed for so long? "There were always lots of opportunities to grow!" he grins. "I worked in manufacturing, marketing and programming – I was always given a free hand to experiment. Even today, I am in operations; but I still dabble in manufacturing."

The Dewas works, which was set up in 1962, is the oldest after Vadi, and has grown 50 times in the 57 years since it was established to manufacture small domestic and agricultural pumps. "We have been concentrating on productivity: there are some 500 competitors in our range, so we have to be highly productive to make sure that we stay cost-competitive." And while Dewas doesn't come anywhere near the Coimbatore all-woman facility's record of 17 seconds per pump, it has worked hard to halve its cycle time from two minutes. Sanand, which has more than tripled its production from 7,000 pumps to 22,000 per month in just over three years, has proved to be the fastest-growing facility in the KBL family.

With the increasing concentration on power saving, the pumps have now earned a five-star rating from the Bureau of Energy Efficiency. The plant also relies on renewable energy for as much as 80 per cent of its requirement, thanks to a 2 MW rooftop solar installation and a 13kw solar park. All the LED lights in the plant and on the streets are solar operated. There is also

from Banaras Hindu University. He joined KBL at Kirloskarvadi, Maharashtra, in 1956 as a trainee engineer, through a government scheme which selected youngsters like him and sent them to various companies. More than 60 years ago, he is still with the Kirloskars.

One day in 1965, when Mangla was in his home village on leave, he got a letter telling him to shift to Dewas 'immediately'. He worked there in different capacities – works manager, factory executive, and in marketing and sales.

One day, he travelled to Pune for a meeting with the legendary S.L. Kirloskar, and picked up the courage to suggest that the Dewas unit could supply pumps to other companies under their own brands

"There was total silence!" Mangla recalls. "One colleague whispered that I should pack up to leave. But SLK told me to explain. Then he said, 'I do not mind if the farmer is going to get an energy-efficient pump.' But I was to handle this project alone, along with my other responsibilities. I got half a

dozen companies on board and reached a ₹3-crore turnover. SLK patted me with the comment, 'Well done!' That was enough for me."

Taking premature retirement in 1990 after his son finished his BA, he decided to stay on in Dewas to set up his own unit at Sanjay Kirloskar's suggestion. KBL had started making mini pumps; Mangla got a contract to make these on a job-work basis. He continued to meet KBL's requirement, then began to supply to Usha International so that he could

make ends meet. "The first few years as an entrepreneur were the hardest of my life," he says – but with Girish fully involved, the father and son have taken the company from a turnover of ₹50 lakh when it got ISO to ₹4 lakh now.

Under Girish, it has also become a group. "We have set up Munshiram Industries for motor winding, and Mangla Enterprises, a foundry which we started originally for other customers like Usha and Gabriel," he explains.



The '1926' building at Kirloskarvadi, the eponymous town where it all began...



... the plant as it is today



The modern Dewas factory is one of the three small-pump units

a biogas plant that runs on the kitchen waste. Another thing Tiwari is excited about are the new manufacturing methods: one of which is the introduction of cobots, or collaborative robots, which can carry out every operation on the shopfloor. These, he hastens to explain, will not replace existing workers but take over from retirees: as one of the oldest plants, it sees an average

of five people retiring every month.

KBL, Tiwari points out, pioneered the concept of a common shaft for motor and pump, which are more efficient in transmission than the traditional two-shaft ones. It also invented self-priming suction pumps, used for dewatering and sewage treatment plants, and has garnered a market share of 55 per cent in the 27 years since it launched these.

"We have almost a monopoly in hospitals and airports," he says.

Back in the head office, India business head Anurag Vohra lists 11 sectors in which the company's small pumps operate. With this product virtually treated as a consumer durable by the market, KBL has to keep up regular engagement with its 800 dealers and 15,000 retailers all over the country to maintain top-of-mind awareness of its brand among the many they sell. "We also have engineered pumps for different customers, as well as medium-sized ones. All three sectors have to be addressed and engaged differently," he explains. "Yes, it is a me-too kind of business – but we are upgrading our products constantly, and have managed to increase the discharge by as much as 40 per cent while cutting down electricity consumption by 30 per cent. We are definitely the leader in innovation."

The LLC series, for example, are 20-25 per cent more expensive than what KBL's competitors produce, and are tough to sell – but major plus points are the fact that they lose less



RODELTA-ALMELO

than 0.25 per cent in energy efficiency each year, and come with a magnetic drive, a canned motor and a cooling system which help greatly in handling toxic, corrosive and hazardous liquids. "Overall, we are agile and responsive to the market, which is a very customer-oriented one," Vohra adds. "Customers have a very highly emotional connect with us."

But the marketing department can't afford to rest on its laurels, says Anurag Kumar, deputy general manager and head, marketing. "We are a respectable brand with a huge product portfolio that comprises the largest range in the world from household to nuclear reactors," he says. "But competition is increasing tremendously: in south India, for example, there is a pump manufacturing company every 10 km! So we have to make sure that we stay competitive in price, speed of delivery and service criteria." His team is getting really aggressive now, with a multi-channel attack using digital and social media channels in addition to the traditional ones of keeping up interaction with influencers like plumbers and electricians, who advise home buyers on which brand to choose.

Chittaranjan C. Mate, vice president and head, corporate finance and accounts, agrees that the company has been very fast in adopting new technologies and moving forward over the years. Mate, who joined KBL in 1986, moved to the Ebara JV in 1989 and back to the parent company in 2015, talks of MRP as a different concept from the 'Maximum Retail Price'



SPP, USA

that everyone knows: this is material resource planning, which was a dire need in the days when fixed deposits and debentures were the major source of raising money. "Things were difficult. Today, we are in a different market," he says.

Mutual respect

The company, he explains, continues to be conservative in terms of borrowing money. "We are not averse to it, but we want to keep it under control," he says. "The focus is on proper utilisation of capital expenditure – we have brought our CAPEX down from ₹530 crore in 2012 to under ₹100 crore. We don't want to starve the plants when they need equipment, but the accent on collecting their own money and managing their inventory."

Suppliers say they feel privileged to be working with the company. While Mangla Engineering in Dewas was almost a spin-off, started by a KBL veteran (see box, *Mangal* meeting), Sandeep Kotnis, managing partner of the

Satara, Maharashtra-based metal fabrication firm Hindustan Structural Works, is looking forward to celebrating his company's golden jubilee of its association with KBL in a couple of years. "Our relationship dates back to 1970, when my father executed their first order ever," he says. "We now supply 700-1,000 tonnes per annum of MS (mild steel) fabricated parts to KBL for their vertical turbine pumps, concrete volute pumps and also components for their hydel power projects. These include various types of discharge heads, motor stools, pipes, pump bases, thrust bearing lanterns, etc."

Describing the relationship as based on a feeling of mutual respect and trust, Kotnis adds: "KBL has helped us have a vision for ourselves, assisted us in identifying our strengths and weaknesses and been instrumental in shaping us into what we are today. They have given us the confidence that we could do jobs that could be accepted globally, despite the fact that we are located in a rural area and many of

UK SPP MANUFACTURING SITE



KIRLOSkar POMPEN BV



KONDAPURI STEEL PLANT



our workers have not had formal education."

With KBL having put its faith in him, he says, he and his team make every effort not to let the prestige customer down. "Since we fabricate customised parts, there is a lot of manual work involved. Automation of the process is not easily possible. Nevertheless, we ourselves certify the quality of our jobs and KBL does not have to spend a paisa on inspection at our end," he explains. "Since a major chunk of our supplies is exported, we always bear in mind that if a quality issue surfaces in our product, it would bring disrepute not only to us, but to KBL and ultimately to our nation as well. That awareness goes a long way in ensuring qualitative repeatability of jobs and repeat orders."

Besides doing CSR activities in the areas around its plants – like the WASH (water, sanitation, hygiene) programme in Dewas – the company also lent a helping hand during the July

2018 rescue operation to bring out the 12 boys and their coach who were stuck in an underwater cave in Thailand. In response to the Indian Embassy's recommendation of Kirloskar Brothers' technical expertise in dewatering, the company had advanced on-ground support, sending experts from its global offices: KBL (India), KBTL (Thailand) and SPP Pumps (UK). The team was present on site at the cave in Tham Luang Mae Sai since 5 July and met senior officials to offer technical know-how and advice on dewatering and pumps involved in the rescue operation.

Future is here

In addition, KBL offered to allocate four of its patented, specialised high-capacity Autoprime dewatering pumps and kept them ready at its Kirloskarvadi plant to be airlifted to Thailand for the rescue operation. In the end, these were not needed, and everyone was safely rescued. The company had

earlier been involved in flood control operation in Thailand in 2011, and recently executed the large Bang Sue project to keep the entire city of Bangkok flood-free by installing some of the largest concrete volute pumps in the country.

With a 2018-19 turnover of ₹2,248 crore up 15 per cent, but profit after tax of ₹87 crore a jump of 33 per cent. And having declared a dividend of 125 per cent (amounting to ₹2.50 per share) for 2018-19, it is small surprise that Anand Rathi rates it well. "Inflows in irrigation and water resource management are expected to grow robustly with elections around the corner," the analyst says. "The FY20 order book will be healthy with sound revenue assurance for the next two years."

And with Alok and Rama at the helm, the future is already here: while Alok points out that their pumps meet the energy efficiency norms for 2020 and have technology patented in the UK and elsewhere, his father adds that they save 22-24 per cent energy, especially in agriculture applications. KBL is in the process of implementing its 'Dolphin' system, an AI programme which will capture all data about every product it has manufactured in the last 42 years, and has the logic to know which product to choose and change internally as needed – all within three minutes.

"Industry 4.0 is very interesting¹" Rama exclaims. "We are automating all our plants. Companies like us have to go that way; our global competitors are, too. Indian companies have to be better, to be considered at par."

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