

# L&T Earthmover News

Customer Newsletter

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**KOMATSU**  
*Creating Value Together*

**100<sup>th</sup>**  
**Anniversary**

*The Power of Platinum – Looking back with Pride!*



## Komatsu@100 – A journey of challenge & commitment

Komatsu Ltd. came into being in 1921 in Japan with the firm belief of its founder, Mr. Meitaro Takeuchi, to develop the machinery industry in the rural areas and to promote their growth for the benefit of the nation. Komatsu Iron Works Limited (estd.1917) manufactured mining machines and machines tools for in-house use. Komatsu Iron Works was separated from Takeuchi Mining Co. and became Komatsu Ltd.

In 1938, the demand for tractors made Komatsu establish the Awazu Plant. Soon, this plant took up the production of ammunition to support the Sino-Japanese War. Its Osaka Plant came up in 1952 as a base to expand the business, but helped the company survive recession which followed the outbreak of the Korean War, by producing artillery shells.

This was followed by expansion of existing plants and commissioning of new plants in Kawasaki and Himi. Initially, the Kawasaki Plant focused on repairs of heavy-duty vehicles of the U.S. armed forces and the Himi Plant focused on the production of high-quality iron castings.

Soon, the internationalization of Japan's economy in the sixties brought fresh challenges to Komatsu. Quality became the key, leading to company-wide strong focus and drive to bring about quality improvement. Thus, QC became an integral part of its manufacturing process.

1962 saw the opening of the Oyama Plant as the base for engines with Komatsu introducing the latest equipment and production technology. In 1964, Komatsu became the first Construction Equipment manufacturer to win the Deming Applications Prize, one of the highest-ranking awards for quality.

The KOMATSU Way came in 2006. With the market changing rapidly, Komatsu thought it essential for all its employees to share its values across the world and therefore developed 'The KOMATSU Way', to ensure further growth as a global company.

2007 saw the establishment of harbour-adjacent plants in Ibaraki and Kanazawa. Komatsu constructed the Ibaraki Plant to produce large Dump Trucks and Wheel Loaders and the Kanazawa Plant to produce super-large Hydraulic Excavators. Both plants helped to reduce land transportation costs and CO2 emissions substantially.



## Komatsu expands operations abroad

For the first time since its start, Komatsu exported Motor Graders in 1955 to Argentina opening new avenues for the Japanese manufacturers. A few years later, in 1964, Komatsu sent a consignment of Bulldozers to Italy, making its formal entry into Europe. In 1967, Komatsu's first overseas subsidiary came up in Belgium which formed its sales and service base for the European market.

1975 marked the setting up of the first offshore production facility in Brazil to manufacture Bulldozers with substantial localization to address the growing requirements of Latin America.

Shortly thereafter, Komatsu established PT Komatsu Indonesia in 1982, to manufacture progressively the entire range of Bulldozers, Wheel Loaders, Motor Graders and Dump Trucks to cater to the South East Asian market.

In 1985, Komatsu took a major step to enter United Kingdom with local production of Hydraulic Excavators and Wheel Loaders.

In another major decision, Komatsu took giant strides in 1988 by making a full-scale entry into the Americas. Komatsu Dresser Company came up as a joint venture with Dresser Industries Incorporated.







Mr. T. Ohashi, Chairman, Komatsu Ltd, participating as the Chief Guest at the inauguration of Hydraulic Excavator plant in KIPL at Oragadam.

Headquartered in Illinois, this joint venture dealt with both Komatsu and Dresser brands of equipment in USA.

In the meantime, Komatsu strengthened its sales promotion in Australia, with the establishment of NS Komatsu Pty Ltd.

In 1993, Komatsu took a strategic decision by establishing joint ventures with Cummins to produce diesel engines in Japan and USA. Accordingly, Komatsu Cummins Engine Company Limited came up in Oyama Plant to produce small Cummins engines and Cummins Komatsu Engine Company in Seymour Plant, USA to produce large-size Komatsu engines.

1995 saw Komatsu gain a strong foothold in China with Komatsu Changlin Construction Machinery and Komatsu Shantui Construction Machinery set to manufacture and sell Wheel Loaders and Hydraulic Excavators.

At the same time, Komatsu began production of Hydraulic Excavators in Thailand to address the local demand. Bangkok Komatsu Company was established as a joint venture to manufacture medium-sized Hydraulic Excavators in 1996 and thus consolidate its position in South East Asia.

In 1996, Demag Komatsu GmbH, a joint venture with German Mannesmann-Demag, was established to develop, produce and sell super-large Hydraulic Excavators for use in mines. Komatsu was already manufacturing super-large Bulldozers and Dump Trucks there.

In a parallel development, Komatsu acquired Modular Mining Systems Inc, USA and expanded its mining equipment business. MMS had a proven record with its

DISPATCH system, which wirelessly collected information about the locations and operating status of vehicles within mines to manage the allocation system.

In 1997, Komatsu strengthened its operations in South Africa by establishing Komatsu Southern Africa (Pty) Limited as a joint venture, to sell Construction and Mining Equipment. This was followed by Komatsu Middle East FZE in the United Arab Emirates to reinforce the business in the Middle East.

With Komatsu deciding to expand its presence in the Indian market, it was in 1998 that L&T-Komatsu Ltd. came into being. Komatsu formed an alliance with Larsen & Toubro, an Indian Engineering Company. The joint venture company, L&T-Komatsu Ltd., started with production of PC200-6 and later launched 5 more excavator models for the Construction Segment from the Bangalore plant. L&T-Komatsu brand became highly popular across India with

PC200-6 Hydraulic Excavator becoming the highest selling model in the 20-ton class. Other models too have been successfully deployed across user segments and multiple applications. Besides actively promoting these machines in the Indian market, L&T extended effective service and parts support, through a nationwide network of Authorised Dealers and Service Centres. In due course, L&T-Komatsu brand gained a strong foothold and leadership in the Construction Equipment Industry in India.

In 2006, Komatsu took a major decision to enter the Indian mining market. Komatsu India Private Limited came into existence with a manufacturing plant in Chennai to produce Off-highway Dumpers. Later, the plant progressively took up manufacturing Hydraulic Excavators in 2014 for the Construction segment after Komatsu's exit from the joint venture L&T-Komatsu Ltd.

CIS counties being another key market, in 2006, Komatsu established Komatsu CIS, LLC as the regional headquarters, strengthening its sales and service operations in CIS. In 2010, Komatsu opened its first manufacturing plant in Russia and began production of Hydraulic Excavators followed by Dump Trucks.

In 2017, Komatsu became a full-line manufacturer of mining equipment by taking over Joy Global Incorporated, USA, which was renamed Komatsu Mining Corporation. This marked Komatsu's majestic entry into the Underground Mining Equipment market globally.



File photo of PC300-8 and PC350-8 machines during the launch at KIPL-Oragadam Plant.



# Komatsu@100 – A century of product innovations!

Let us take a close look at Komatsu's product history and diverse innovations with several firsts that marks its 100 years of operations across the world!

It all began in 1931 with Komatsu producing Japan's first tractor for agricultural purposes. While competitors gave up, Komatsu pursued with a commitment to develop G25 Tractor equipped with its own newly-developed engine.

G40 Bulldozer introduced in 1943, was launched for the construction of airforce base. Komatsu made a range of prototypes and laid its foundation as a manufacturer of Construction Equipment. After the World War II, full scale operations resumed and the first model of the D50 Bulldozer was rolled out which emerged as the flagship product. In 1965, Komatsu diversified into the production of Wheel Loaders, in collaboration with International Harvester, with huge success.

A new world of technology opened soon with Komatsu introducing Hydraulic Excavators by signing up with Bucyrus-Erie. Starting with the 15H, it rolled out a series of models with enhanced capabilities. With this, mechanical excavators were replaced by hydraulic excavators. **Advance** series HEX, which came out in 1988, saw top-grade models with microcomputer controls and hydraulic valve operations, achieve a high-level of power output and fuel economy.

In 1995, Komatsu created history by developing the 930E Dump Truck with 300-



G40 Bulldozer, the first product rolled out by Komatsu, on display at its Global HQ in Japan.

ton payload capacity, the world's largest model, to improve productivity and reduce hauling costs in large opencast projects.

Continuing its mega-size products, Komatsu launched the super-large WA1200 Wheel Loader in 1999, achieving high productivity, fuel economy, and comfortable operation. It featured a large-

capacity bucket, as well as the most powerful excavation and traction of its class.

In 2001, Komatsu brought in a game-changer in the form of KOMTRAX. Machines were fitted with remote monitoring system KOMTRAX, which allowed location tracking and operating



Komatsu Mining Truck ready at the KIPL-Oragadam Plant for Indian market.







A range of Hydraulic Excavators manufactured by Komatsu India Pvt. Ltd. for the Construction segment.

conditions via GPS and communication devices. KOMTRAX data is effectively used for the enhancement of customer service and for production planning.

Komatsu ushered in cutting-edge technology in 2008. The world's first hybrid hydraulic excavator, PC200-8, was launched with the in-house developed Hybrid System, achieving dynamic fuel economy.

For the first time, Komatsu led the world by deploying the AHS (autonomous hauling system) in 2008. By equipping Dump Trucks with a high-precision GPS, an obstacle detection sensor and a main control room, Komatsu achieved 24-hour unmanned operation of the Dump Trucks. The AHS contributes substantially to increase on-site productivity and safety.

Komatsu also achieved the world's first

commercial deployment of the D61PXi Bulldozer with intelligent controls, which features automatic blade controls from excavation to the final levelling of land. The bulldozer frees its operators from complex blade manipulation, thereby reducing their work burden, enabling even inexperienced operators to handle with ease.

In 2015, Komatsu ushered in SMART CONSTRUCTION, a solution to create safe, highly productive, smart and clean construction sites of the future by connecting various kinds of data available at construction sites by using ICT. By fusing the 3D terrain data obtained by using drones with ICT construction equipment, Komatsu increased the efficiency of the process from surveying to inspection and visualized the process, thereby contributing to solutions at construction sites.

Hybrid construction equipment became an in-thing by 2020. Komatsu launched PC30E-5 electric mini excavator in Japan. While achieving zero exhaust gas and an outstanding noise reduction, it could work in the indoor area and during night-time as well.

The quest for innovation made Komatsu to launch new IoT devices in 2020 to accelerate digital transformation efforts, including SMART CONSTRUCTION Retrofit kit ICT capabilities, such as 3D machine guidance and payload measurement, on conventional Construction Equipment. This will enable worksite operations to be optimized and to achieve improvement in safety, productivity and performance.

## Message from L&T Management

*With Komatsu celebrating its Centenary across the globe, it is our great pleasure to greet you all on this momentous occasion.*

*The presence of around 45,000 Komatsu machines across India, engaged in nation building, mirrors the strong relationship between Komatsu and L&T, jointly built since 1998.*

*The faith reposed by our Customers in the Komatsu brand is evident from the repeat orders, re-affirming the value creation by these machines. With the continued thrust of Government of India for infrastructure development and the renewed focus on mining, we are sure, together, we will be able to create new records for Komatsu in India and cross new milestones in performance and productivity.*

*On behalf of L&T, we extend warm wishes to the Komatsu's top management and its team in India during these Centenary celebrations.*

**S.N. Subrahmanyam**  
CEO & MD, Larsen & Toubro

*We are, indeed, privileged to be partnering with Komatsu - the world leaders in Construction & Mining Equipment. From 1998, it has been an exciting and satisfying journey for us to work closely with the Komatsu team in developing the market for premium Construction and Mining machines in India.*

*We are deeply honoured that several Indian customers in the Construction & Mining segment, who have chosen to work with Komatsu machines have become highly successful, and are large fleet owners of Komatsu machines, today. This success has been possible due to Komatsu's superior Technology, Quality and Reliable equipment, effectively supported by L&T's committed after-sales support.*

*On Komatsu's Centenary celebrations, we extend our Hearty Congratulations to the entire Komatsu Management and wish Komatsu continued Success and Prosperity, as Komatsu unveils new Products and Solutions in the coming years.*

**Arvind K. Garg**  
Executive Vice-President & Head  
Construction & Mining Machinery and Industrial Machinery, L&T



## L&T Construction & Mining Machinery – Reinvigorating our commitment to the future!

Some of history is planned and some is fortuitous. Today, as CMB celebrates its 75-year jubilee, you could say that our exciting, event-studded history is a mix of both!

It all began with a chance meeting between Holck-Larsen and Bud Capfer of Caterpillar at a dairy conference in Delhi in 1945. They got together, and L&T secured the dealership for Caterpillar tractors. Later that year, the war ended, and tractors were deemed war surplus. L&T purchased 100 machines. For this, it needed funds, and this is what set in motion a train of events that eventually saw the partnership firm becoming a private limited company.

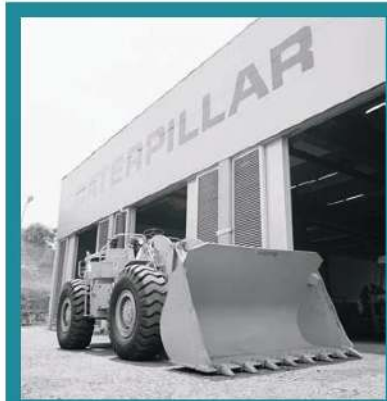
The association with Caterpillar was of immense significance for the future, for it helped L&T step up a gear. It extended the company's reach, enhanced its processes and practices, and reinforced its customer orientation. And yes, the yellow colour that Brand L&T is associated with, is said to have been inherited from Caterpillar.

### Powai Workshop

The alliance with Caterpillar saw L&T establish its first Service Centre in the sprawling campus of Powai. This workshop, located at Gate No. 5, handled repairs of Caterpillar products that were imported and distributed by L&T to contractors involved in shaping up infrastructure across India. These machines were - Track Dozers, Wheel Loaders, Motor Graders and Coles Cranes.

Soon, L&T opened Service Centres in Delhi and Chennai, to provide comprehensive repair solutions to the customers in North and South, respectively. Most of the Caterpillar machines were purchased by Irrigation Dept of State Governments, as well as private mine-owners, predominantly from Goa.

"The L&T workshops were well planned and equipped to repair the entire powertrain components like Engine, Transmission, Hydraulic Pump and test with the inhouse dynamometers. Very few companies had this kind of repair facility those days", says Mr. Arun Pai, former General Manager (Product Support), L&T. L&T Service Centres in Powai and Chennai were fully equipped with Track Press and Undercarriage repair facility for total repair and rebuilding of Undercarriage components.



In the early seventies, Mr. N.M. Desai, who was a Director of the Company, visited an industrial exhibition in Paris from where he returned highly impressed with the Poclair Hydraulic Shovels. His determination to provide India with a big infra push facilitated him to sign a collaboration with Poclair SA, France for transfer of technology.

Those days, most of the earth removal was done by traditional mechanical shovels in India. L&T became a pioneer in Hydraulic Excavators which was far more efficient than mechanical shovels.

### Bangalore Plant

In 1974, a huge land parcel was acquired in Bangalore and L&T set up its modern factory to manufacture Poclair excavators. ECC was contracted to build the plant with the latest concept of pre-stressed concrete, where the shop-floors could be expanded easily. The initial models launched were LC80 and LY80. With this, a new world of advantages opened for the Construction Industry.

The years that followed saw L&T pioneer 90CK as well as its wheeled version – 90P and took the industry by surprise. L&T began road shows across the country to promote the technology and thus these products began their penetration. The highest capacity 300CK was successfully built by L&T in 1978 which found deployment in the coal industry with its excellent performance and productivity. These products proved to be a huge success and revolutionized the way excavation and mining would be done in future. Improved version of 300CK is still being sourced by CIL subsidiaries.

It was a fitting tribute to the L&T's design team that developed first indigenous excavator model 72CK in the 13-ton class which proved to be a hit in the domestic market. The distinct red-coloured machine was seen deployed in prestigious projects across the country such as the Konkan Railway which was a pathbreaking effort in those times.

Around the same time, L&T was one of the earliest establishments to set up a highly modernized inhouse facility to manufacture high-precision Hydraulic Components with multistage testing and





high reliability standards.

Well, it was time for L&T to undergo introspection and change. Says Mr. D. Keshava Kumar, former Chief Executive, LTCEL, "The culture of the organization was reoriented to give more thrust on customer satisfaction and team work. Simultaneously, we embarked on initiatives such as TQM, Business Process re-engineering and strategic sourcing to strengthen the supply-chain and to improve efficiency."

The impact of new technology was seen with L&T introducing Vibratory Compactors in the Indian market. Till the late 1970s, the roads in the country were compacted using traditional road rollers, which had limitation on the extent of soil / asphalt compaction that was done, resulting in poor life of the roads. This was when L&T introduced the concept of Vibratory Compactors, which carried out far superior compaction, resulting in better quality and durability of the roads. L&T collaborated with Albaret SA-France to introduce their Vibratory Compactors in the country.

In the years that followed, L&T's strategic alliances with Vibromax-Germany, JI Case-USA, Terex-USA and Detroit Diesel-USA saw it assemble and promote a series of imported products such as Vibratory Compactors, Loader Backhoes, Wheel Loaders, Dump Trucks and Generator Sets briefly in the market. This demonstrated the engineering capabilities of L&T in the realm of earthmoving equipment.

#### Joint Venture

However, the increasing competition in the Hydraulic Excavator industry with the influx of new players made L&T to think fast. L&T joined hands with global leader Komatsu Ltd., Japan, in 1998, to become its Distributors for a wide range of

technologically advanced and superior Construction & Mining Equipment. L&T's plant at Bangalore metamorphosed into a Joint Venture, L&T-Komatsu Limited, with Hydraulic Excavators (7 to 45 ton) manufactured in this facility.

L&T-Komatsu soon became a benchmark in the industry with a slew of new excavator models rolling out – PC200 machine followed by PC300, PC130 and PC450 models which epitomized Quality, Reliability and Durability. PC200 became a leader in the 20-ton class with over 14,000 machines population in the market. Owing to the market demands, L&T came up with the innovative small excavator model PC71, which scripted huge popularity in the market and became popular as 'The Little Master'.

Says Mr. Vivek Hajela, Vice-President - Construction Equipment Business, L&T, "The strategic tie-up with Komatsu enabled us to offer a range of world-class products in the local market that resonated well with the India's infrastructure journey and the rising customer expectations."

The overwhelming success of L&T-Komatsu machines in the market reinforced its brand position in the premium excavator category. Komatsu's way of manufacturing was introduced to strengthen the processes and NF3000 was introduced to develop long-term component reliability.

A localization drive ensured cost-effectiveness of the products while the moving line concept in L&T-Komatsu plant helped achieve lean manufacturing and step up volume rapidly to roll out over 375 machines in a month.

#### Swedish Technology

Enter the Swedish Tipper! In 2007, L&T entered a strategic partnership with Scania-Sweden to promote its new multi-axle Tipper Trucks as a transport hauler in the mid-mining segment. L&T ushered in Scania technology and helped establish credibility in the market with their robust and long-term performance. Several contractors engaged in OB removal operations have profitably deployed these



*At the opening of L&T-Komatsu Limited joint venture in Bangalore – Mr. S.D. Kulkarni, CEO & MD, Mr. J.P. Nayak, Director, Mr. Y.M. Deosthalee, CFO and senior members of L&T management with Mr. Masatake Mizusawa, President, Komatsu Asia & Pacific Pte Ltd.*





*The range of products designed and manufactured indigenously by L&T Construction Equipment Limited.*

tippers.

To expand its presence in the Asian market, Scania set up its most modern manufacturing plant in Narsapura-Karnataka. Working closely with L&T, they launched G440XT, the next-gen global model tipper in the Indian market. Scania, along with L&T, has established specialist workshops at major jobsites to carry out repairs/refurbishment of driveline assemblies.

Scania's cutting-edge technology is endorsed by VPR Mining Infrastructure Private Limited, who owns the largest Scania fleet of over 700 tippers in the world and has deployed in foreign countries as well.

Meanwhile, with a view to address the increasing need for repair solutions in the field, L&T took a strategic direction. It expanded its Service Centres into modern workshops and fast-track repair hubs, as well as relocated them to larger campus viz., from Delhi to Bahadurgarh (Haryana), Mugalivakkam to Kanchipuram, besides opening new Service Centres in Durgapur (WB) and Nagpur. The latest in the list to come up was in Singrauli (MP), the heart of the coal mining industry.

"Over the period, L&T Service Centres were recognized for their critical role in enhancing machine availability and peak performance," says Mr. K.A.Sravan Kumar, Head-Product Support, L&T. Today, L&T's expertise in product support is banked upon by several corporates for on-site management of high-value assets which has enabled them to create new benchmarks in the industry. L&T provides annual maintenance contracts and site support agreements to the customers across the country as well as in enhancing the life of the equipment.

In 2013, L&T-Komatsu Ltd was restructured. Komatsu decided to concentrate on product

manufacturing. KIPL started manufacturing excavators at its own state-of-the-art factory in Oragadam, near Chennai. This plant was already manufacturing off-highway mining trucks for India and neighbouring countries. As per the new plan, L&T chose to focus on its strengths – to distribute and promote the excavators and in building the brand.

#### Road Machinery

Simultaneously, L&T decided to use knowledge gained over past many decades to develop bouquet of indigenous models viz., Wheel Loaders and Road Compactors under the new company, L&T Construction Equipment Limited, formed as a wholly-owned subsidiary of L&T. This heralded a new journey for L&T which saw it penetrate the Indian market with its "Made in India" Road Machinery. These machines are equipped with DigiEye, the advanced monitoring apparatus.

L&T's focus on Road Machinery underlined the role of mechanization in the faster execution of Road Construction. With the

Government of India's agenda to increase the average length of daily construction activity of National Highways, the offtake of Compactors took a big leap. Says Mr. Jaikumar Kamath, Head-Road Machinery, L&T "Given the legacy of compactor technology, L&T got a head-start in its latest efforts to enter the Compactor market and demonstrate early success." L&T also launched other value-added products indigenously such as Pneumatic Tyred Roller, Asphalt Paver and Skid Steer Loader.

Besides, L&T Wheel Loaders were deployed to build strategic roads and strengthening border infrastructure. This is in addition to proven applications in blue metal, port handling, stockpiling etc. These products have been exported to SAARC nations as well as African countries.

These indigenous products have been designed and churned out by L&T's Product Development Centre in Coimbatore and have won several design awards for their aesthetics and ergonomics. Says Mr. K. Keshava, Head-PDC, L&T, "Our team has



*Komatsu PC210-10M0, the machine that created waves in 22-ton class across the country, and on the way to become the market leader.*





*A spectacle of Komatsu machines engaged in mining project - PC1250 Hydraulic Excavator with HD785 Dump Truck and D85 Dozer.*

been continuously interacting with users and improvising these products with a view to provide more value and cost competitiveness". PDC has also been successful in developing Crusher Bucket and Slope Compactor which have found good acceptance in the construction segment. All these efforts would enable L&T in moving closer to fulfilling the national mission of achieving Atmanirbhar Bharat.

#### **Indigenisation saga**

In fact, the indigenisation saga had begun much before. The 'Made in India' label was quite popular in the eastern state of Odisha, where L&T had established Utkal Machinery Limited in Kansbahal to roll out steel plant equipment and paper machinery in collaboration with foreign majors. In eighties, L&T acquired control of the company and took up indigenous products progressively – Crushing Solutions (1980), Surface Miners (2004) and Sand Plants (2015). These new product lines were brought under the ambit of L&T CMB and aggressive marketing was launched to expand the customer base.

The Kansbahal Business offers an array of products ranging from Crushing Solutions to Surface Mining Applications and complementing the same with Sand Plants. These products are serviced by a large network of product support architecture.

Surface Miners are a product of L&T's indigenous technology and the company has been highly successful in building up a winning product, for environment-friendly mining in Coal and Limestone sectors. Crushing Solutions are customized projects to specific applications and are bundled with feeders, screens, conveyors and all ancillaries to offer one-stop solution for

both large institutional clients and contractors.

L&T Sand Plants are offered in technological collaboration with Kemco-Japan. L&T's Sand Plants produce excellent quality sand (strength and flowability) and are steadily gaining acceptance as a viable alternative for River Sand (banned in various parts of the country). Today, efforts are on to build L&T as a reliable brand for Sand Plants.

On-the-other-hand, through its large distribution network, L&T has grown Komatsu products multi-fold in the Indian market, both locally produced as well as imported from its manufacturing plants worldwide. Amongst the newest products marketed by L&T is the 'Truly Efficient' PC210-10M0 Hydraulic Excavator which has revolutionized the 22-ton class with its superior performance and productivity. This is besides PC300-8 and PC350-8 machines, which have brought in more muscle. For handling Construction Equipment range, L&T has developed an effective pan-India network of Dealers to service the machine population and provide effective parts support and innovative solutions through their multiple outlets.

Along the way, L&T established the Central Warehouse in Nagpur which forms the backbone of the CMB's operations, stocking and supplying Genuine Parts of Komatsu, Scania and LTCEL to customers pan-India while employing best practices. L&T looks forward to achieving higher efficiency through continuous improvement, with focus on the 'Next Morning Delivery' initiative to reduce delivery time and scale up customer satisfaction levels.

At L&T, Training Centre provides highly

effective courses with multiskilling of people at all levels to enhance the operational efficiency in the Construction & Mining Industry. Advanced training of Operators and Mechanics prepares them for the challenges ahead. With the installation of simulators, Dojo centre and going the e-way with online sessions, training has moved to the next level and become more user friendly.

#### **Mining Market**

The mining market has witnessed large-size machines from Komatsu being shipped in modules and erected by L&T team for both public sector and private customers at various projects. PC3000 Electrical Shovel, 830E Dump Truck, WA900 Wheel Loader and D475A Crawler Dozer have ushered in mega mining operations in Coal, Iron ore, Limestone and other minerals enabling India to move into the bigger league.

Says Mr. Partha Mookherjee, Head-Mining Equipment Business, L&T, "We have initiated a whole lot of application engineering and continuous improvement programs at major sites using digital tools and Komatsu software to reduce cost per tonne of material moved." Quality, Reliability & Durability of Komatsu machines have made them an automatic choice for several private contractors handling OB removal projects and looking for excellent and long-term returns on investment.

Thanks to the meticulous operation, committed service and exceptional support by L&T Team, mining machines have crossed new heights of performance. For instance, Komatsu HD785 Dump Trucks deployed in Tata Steel-Noamundi Mines and Komatsu PC2000 Hydraulic Excavators



**Cover Story**

have crossed 60,000 hrs in SCCL-Ramagundam Mines. This is despite the Covid19 pandemic which did not affect the mining operations.

Looking back, L&T's journey in Construction & Mining Machinery Business has been of grit and determination by harnessing technology and transforming society in 75 years. For Mr. Arvind K Garg, Executive Vice-President and the Captain of L&T CMB,

challenges have been wide and varied in his long innings characterised by new products, new markets and new customers.

Mr. Garg who signed up with L&T as GET from NIT-Bhopal has been through the rough and tumble of the business and handled it all with aplomb. He is extremely delighted to be a partner in the changing face of India's infrastructure and radiating the spirit of L&T's founding fathers. A renewed commitment to customers with cost-effective technology solutions is his credo, today and always.



*L&T's Bangalore Plant under construction which went on to become L&T-Komatsu Limited*



*Crowds gather to eagerly watch a Hydraulic Excavator in operation*



*Roll out event of the first L&T-Komatsu PC200-6 Hydraulic Excavator, which went on to become the largest sold machine in 20-ton class in India.*



*A view of the majestic L&T-Terex Dump Truck assembled at the Bangalore Works.*



*Leadership team that shaped CMB and its eventful journey - Mr. J.P. Nayak, Mr. S.Raghavan, Mr. S.K.Mitra, Mr. S.R. Subramanian and Mr. Arvind K. Garg.*



*Mr. J.P.Nayak, President, L&T unveiling the Scania P380 Tipper Truck at L&T Pavilion in Excon 2007.*



L&T has a legacy of pioneering critical equipment needed for the Nation-Building and has been at the forefront of indigenous development of engineering design and manufacturing capabilities. We are delighted that our Construction & Mining Machinery Business has been fulfilling the formidable needs of Mining and Construction sectors with innovative equipment and commendable service records for the last 75 years.



**S.N. Subrahmanyam**  
CEO & MD  
Larsen & Toubro

Our Founding Fathers have always emphasised that working in L&T is working for a higher purpose, Building our Nation. This concept finds ready expression in activities of L&T Construction & Mining Machinery Business.

It is a matter of immense pride for me to be associated with CMB right from its initial years to finally leading it from the front. On the occasion of Platinum Jubilee, I congratulate the CMB Leadership Team for continuously innovating and introducing new products and technologies that has enabled the company in building much admired marvels and structures of the Modern India.



**Jagdish P. Nayak**  
Former President and  
Member of the Board  
Larsen & Toubro

It has been our absolute commitment to serve valued customers over the last seven and a half decades. L&T has pioneered and introduced global technologies, equipment and practices for the development of the nation. At this important juncture, we thank our Customers for their association and continued patronage.

We greatly value the excellent support received from all Principals, and appreciate the cooperation given by our Dealers through this journey. People being the prime movers, our success has been due to the whole-hearted contribution of every member of CMB fraternity. We owe a lot to our Top Management for our success, who have always guided and supported us in our journey.



**Arvind K. Garg**  
Executive Vice-President, L&T Construction & Mining Machinery

At Scania, we have had a fulfilling business relationship with L&T. Starting from 2007 with our imported tippers, L&T has been with us promoting multi-axle Tipper Trucks as an optimum hauling solution in the mid-mining segment. We had the opportunity to expand the business and introduce innovative models of the indigenously-manufactured Tipper Trucks, which have found high acceptability in the Indian mining segment.

As L&T Construction & Mining Machinery celebrates 75 years of successful journey, we deem it a pride to be associated with them and wish Mr. Arvind Garg and his team all the best as they move ahead to face new challenges.



**Petr Novotny**  
Managing Director  
Scania CV India Pvt. Ltd.

I am happy to learn that L&T Construction & Mining Machinery has completed 75 years of successful journey. This is an important milestone and Komatsu has actively collaborated with L&T since 1998 to introduce cutting-edge technology in the Indian market. Both in Construction and Mining Segments, L&T has brought in the best and proven models from Komatsu across the world, which have set new benchmarks in performance and reliability. As distributors, L&T has brought in a high degree of professionalism, supported us fully in promoting various products and popularized maintenance contracts in mining projects. Our team has been working closely with L&T and evolving value-added offerings to retail customers which have opened up new avenues of business.

KIPL values this long-standing relationship with L&T and on this occasion, we wish Mr. Arvind K. Garg and his team the best of times. Komatsu is celebrating 100 years of operations and we extend greetings on the occasion.



**Yasunori Fujii**  
Managing Director  
Komatsu India Pvt. Ltd.



## CTC- 25 years of Learning & Development



*Then and now – Central Training Centre*



Even as L&T Construction & Mining Machinery is into celebrating the Platinum Jubilee, here comes the good news that its Central Training Centre has completed 25 years of its founding. CTC has grown from strength to strength occupying an enviable position in the CE Industry today. CTC has completed 25 years of operations since it was formally inaugurated at L&T's Bangalore Works in July 1995.

The Training Centre, started in a small way to initially train DETs, expanded to train GETs, Customers, Sales and Parts team. It seamlessly took on the training of Komatsu products in 1997-98, followed by the training of Dealer team and Scania products. The start of its regional centres at Bahadurgarh, Nagpur, Durgapur and Singrauli gave a big push to CMB's training initiatives.

CTC's relocation to a spacious facility at Kanchipuram in 2015 saw more classrooms, actual machines, technical Lab, model room and space for operator training. With the addition of simulators and going the e-way, training has become complete and more user friendly. The online Skill Inventory Tests and the Advance Technic Contests periodically conducted by the Training Centre have acted as excellent methods of training-need analysis and development planning.

Over the years, the trained team has undertaken challenging assignments in erection and assembly of large shovels and mining trucks, besides taking on leadership roles and responsibilities. Refresher courses are conducted each year on technical updates for the field team.

Joining hands with the Govt. of India's Skill India initiative, L&T CTC has added a new feather in its cap. Having trained and certified over 10,000 trainees, L&T-CMB Training Centre has played a key role in transforming the lives of people engaged in the Construction & Mining Equipment Industry. The RPL-4 Programs under PMKVY (Pradhan Mantri Kaushal Vikas Yojana) have enabled CTC to make a big mark in the industry besides fulfilling the social responsibility of having produced some of the most competent Operators and Mechanics.

CTC is now playing a larger role of providing skill development opportunity to jobless youth and making them employable. An Excavator operator pool of 140 operators drawn from unemployed youth has been created who can make a career. Over 12,000 certifications have been issued under the various training schemes in the last 5 years.

CTC has moved to the next step and has started the classes online with great success. The best compliment was from Mr. T. Ohashi, then President and CEO, and now Chairman, Komatsu Limited, who observed CTC was 'one of the best training facilities of any distributor in the world'.



## Celebrating delivery of 100 Komatsu machines to NCL

Komatsu has been going strong in Northern Coalfields Limited thanks to the 'Quality, Reliability and Durability' of its products. Starting with the first supply of D475 Crawler Dozers in 2008, L&T has supplied and commissioned over 100 Komatsu machines in various projects of NCL in Madhya Pradesh. A special event was

Functional Directors attended the event at the site. Mr. Anindya Sinha, Director (Operations), NCL appreciated the efforts of L&T team in effective coordination and faster commissioning of fleet at site. Mr. Ram Narayan Dubey, Director (Finance), NCL remarked that Komatsu machines were the best quality products as compared to other OEMs. Mr. S.S. Sinha, Director (P&P),

NCL shared his experience of Komatsu machines and rated them the best in terms of quality and longevity.

Later, the D475 machine was handed over to Mr. Anindya Sinha by Mr. Pradeep Lenka, Service Manager, L&T as part of the celebrations. Mr. Indrajeet Singh, Project Officer, NCL- Amlohri Mines proposed a vote of thanks. L&T erection team comprised Team Leader Mr. Sujit Upadhyay, Project Leader Mr. Saurabh Singh and Service Engineer Mr. Mahesh Singh.

With the help of Komatsu fleet and dedicated support from L&T Team, NCL has been able to achieve their coal production targets year-on-year. The augmentation of Komatsu equipment will equip NCL to achieve higher coal production. With the opening of Parts Depot and Service Centre at Singrauli, L&T has stepped up the Parts delivery and faster execution of repaired aggregates like Engine, Transmission, Differentials, Hydraulic Components. L&T Team is providing dedicated service for Komatsu machines on 24x7 basis.



The commissioning of the giant Komatsu D475A Dozer at site marked the milestone of 100 machines

held to mark the handing over the 100th Komatsu machine at Amlohri in the virtual presence of Mr. Prabhat Kumar Sinha, CMD, NCL. Mr Yogesh Niranjn, Zonal Manager, PSD-North, L&T joined online from Bahadurgarh.

The total supplies to NCL include 58 nos. HD785-7 Dump Trucks, 12 nos. PC2000 Hydraulic Shovels, 26 Nos. D475 Crawler Dozers, 4 nos. WD600 Wheel Dozers, 2 nos. WA800 and 1 no. WA600 Wheel Loader at various sites - Jayant, Bina, Khadia, Nigahi, Amlohri, Dudhichua, Jhingurda and Krishnashila.

Mr. Sinha, who joined online, was highly appreciative of the quality and performance of Komatsu fleet in NCL projects and the continuous service rendered by L&T Service team to enhance the availability of machines.



At the handing over ceremony – NCL senior management receiving the symbolic key from L&T team at Amlohri Project.



## L&T records highest sales of Komatsu PC210-10M0 machine in short time, crosses 1000 mark!

L&T Construction & Mining Machinery hit a new milestone with the commissioning of 1000th Komatsu PC210-10M0 Hydraulic Excavator recently. At separate events held at customer sites, the 1000th machine was handed over to M/s. Somendra Singh and 1001th machine to M/s PNC Infratech by L&T team.

In less than 9 months since its launch, Komatsu PC210-10M0 Hydraulic Excavator has blazed a trail in the 22-ton premium segment market with its superior performance and unmatched productivity and achieved leadership position. Its growth is the fastest by any class or any brand of excavator in the Indian Construction Equipment market till date.

Agra-based PNC Infratech Limited (PNC) is the leading infrastructure company executing multiple projects of National Highways, Drinking water supply and Irrigation. PNC is the largest fleet owner of Komatsu PC210 machines in India. The firm owns over 130 nos. Komatsu PC210 excavators which are deployed in their various projects.

Mr. Somendra Singh is a reputed fleet hirer and a key influencer in the districts of Etah and Firozabad of Uttar Pradesh. He owns a fleet of Komatsu Hydraulic Excavators



Senior representative of M/s. Somendra Singh receiving the symbolic key of 1000th PC210-10M0 machine.

which are deployed for a host of applications.

To engage the customers on long-term basis and provide market leading initiatives, Komatsu and L&T have jointly designed and launched Suraksha-10000, which provides customers with unmatched benefits on powertrain warranty. With the launch of this innovative scheme and value offering, Komatsu and L&T have come closer to the customers in providing 'True Peace of Mind' in the ownership and operation of PC210-10M0 fleet.

Komatsu PC210-10 is one of the six Hydraulic Excavator models manufactured by Komatsu India Pvt. Ltd. at its plant in Oragadam. L&T is the exclusive distributor of Komatsu machines in the Indian market.



PNC team receiving the 1001st PC210-10M0 machine from L&T team at site.



## KIPL and L&T team up to launch 'Kavach-7500' Work Equipment Warranty for PC210-10M0

Komatsu is known for the legendary "Quality-Reliability-Durability" of its products. In line with the value-added service offerings, Komatsu and L&T have come up with the innovative Kavach-7500 Machine Care Program that aims to provide long-term Work Equipment Warranty for Komatsu PC210-10M0 machine. The period extends to 3 years or 7500 hours, whichever is earlier and covers Boom, Arm, Revolving Frame and Track Frame.

At the launch programme of Kavach-7500, Mr. C. Jayakumar, Head-Service, Komatsu India Private Limited outlined the features of the new offering and the benefits the customers would derive in the long run. He said the KIPL team was deeply involved as an OEM in studying and understanding the field issues of PC210-10 at customer sites and had strengthened the critical structures of the machine. Based on a customer survey, he said KIPL alongwith L&T had decided to launch this initiative of extending long-term warranty on the machine's structures which would ensure machine's longevity and provide more value to the users.

Launching the Kavach-7500 initiative,



Mr. Y. Fujii, MD, KIPL and Mr. Arvind K. Garg, EVP-CMB, L&T releasing the Kavach-7500 flyer during the inauguration.

Mr. Arvind K Garg, EVP-CMB, lauded the new initiative of KIPL-L&T and said Kavach-7500 is a new approach in Machine Care Program and bound to emerge as a winner. He added, as the fastest growing machine

in the 22-ton class, PC210-10M0 has proved to be a game changer. With increased investments in the road sector, Mr. Garg said there would be a big offtake in excavators and Kavach-7500 is a great step forward in this direction. He congratulated the KIPL-L&T joint team for working out this offering and thanked the KIPL management for taking the activity forward.

Releasing the Kavach-7500 brochure, Mr. Y. Fujii, MD, KIPL expressed his satisfaction at the launch of the initiative which was a culmination of a joint study undertaken by KIPL with L&T at customer sites. He said the Gemba activity has enabled the customers and the market in educating the manufacturers on design and strengthening of the machine. Mr. Fujii said Kavach-7500 is a new weapon in the hands of the sales team and stressed the need to promote it effectively to increase the market share. He wished that KIPL and L&T were poised to become Dantotsu No. 1 in addressing customer expectations in the excavator market.

Mr. K. Nakanishi, Vice-President, KIPL said the launch of Kavach-7500 would prove an additional incentive in the CE market and confident in driving sales. He said L&T's commitment in providing outstanding service is well known and this would give more value to the users.

**KAVACH-7500**  
WEW-7500: WORK EQUIPMENT WARRANTY

**TRUE Peace of Mind**  
**3 YEARS / 7500 HOURS\***

**Work Equipments Covered**

Boom	Arm	Rev. Frame	Track Frame

**PC210 10M0 TRULY EFFICIENT**

**Quality - Reliability - Durability**





A view of L&T and KIPL management and core team members participating in the Kavach-7500 launch ceremony.

In his address, Mr. Vivek Hajela, Vice-President-CEB, lauded the joint efforts of KIPL and L&T in launching the Kavach-7500. He said it was a historic day in bringing in a new concept which was based on the feedback mechanism of users and truly application oriented. Mr. Hajela stressed the need to use this offering to retain the customer base and address the rental companies as well. He expressed satisfaction at the KIPL team leading from the front and urged the L&T team to reach out to customers by using multiple platforms including digital media.

Addressing the gathering, Mr. Sanjay Karkala, JGM-CEB, said this is a unique

offering in Construction Equipment industry and urged the sales team to fully utilize the tool to promote the machine in the market. He said the performance of PC210-10M0 had been highly encouraging across user segments and the launch of Kavach-7500 would give it a further momentum. Mr. Karkala was highly appreciative of the coordinated efforts of the internal team in registering over 75% sales during Covid-19. He said the customers would immensely benefit from the Kavach-7500 programme which is an incremental extension to the Suraksha-10,000 offering. He said the ready availability of the float components would reduce the downtime and lead to increased fleet availability.

Mr. K.A. Sravan Kumar, JGM-Product Support remarked that Suraksha MCP launched a few years back proved to be a great hit among customers and that encouraged them to consistently improve the features year on year. He said the Kavach-7500 programme would be an arsenal for the CE business and enable in assuring users with higher machine availability.

The programme launched online was attended by Zonal Managers and Sales Executives connected from across the country.

## L&T bags Order for Komatsu WA470-6 with Side Discharge Bucket

Komatsu Wheel Loaders are deployed in diverse applications like wagon loading, windrowing, ore handling, mine-face applications, stockpile loading, etc. In the pursuit of targeting newer applications, L&T-CMB launched Komatsu's WA470-6 Wheel Loader, fitted with 3 CuM Side Discharge Bucket (SDL), recently.

SDLs are typically deployed for removing muck from constrained places like tunnels. With increased spend in the Road and Rail infrastructure in the Himalayan region, specialized equipment for tunneling application is likely to be in big demand.

The initial order secured by L&T CMB from L&T's Heavy Civil Infra Business comprises supply of 6 nos WA470-6 with SDL. These special attachment Wheel Loaders will be



deployed at Package-2 of Rail Vikas Nigam Limited's Rishikesh and Karanprayag project.

## UEB consignment for Madagascar

A refurbished PC210-8M0 Hydraulic Excavator was delivered to Nasser Global Links-Mumbai by our Service Centre-Nagpur for shipment to Madagascar. This is the 5th Used Equipment delivered to NGL this year. NGL is a Mumbai-based international trading company with presence in Africa and the Middle-East.





## Rammer 5011 commissioned



Rammer Breakers, promoted by L&T, are making waves in the desertland of Rajasthan. Udaipur-based Sanwariya Transport Carriers have become the customer with the largest population of Rammer Breakers in India. The firm has procured six breakers in the last two years and fitted on various excavators which are deployed in limestone applications in Chittorgarh area. The latest breaker is the heavy-duty model 5011 fitted on Komatsu PC450 Hydraulic Excavator, and working exceedingly well. The customer, Mr. Ravindra Bhutra is convinced of the superior technology of Rammer and Komatsu brands, and the long-term benefits L&T has to offer. He has also procured Komatsu PC71 small size machines for his other requirements. Our Dealer, Rajasthan Diesel Sales & Service, has been supporting the customer well with staff training, effective field and parts support.

*Mr. M. Naganand, JGM-CEB, L&T alongwith the customer, Mr. Ravindra Bhutra, with the newly commissioned Rammer Breaker at site.*

## L&T 9020 makes entry in MCL

L&T 9020 Wheel Loaders made a maiden entry into the public sector, Mahanadi Coalfields Limited, with the commissioning of 2 machines in its Orient Area of Jharsuguda and 2 more in Basundhara Area of Sundargarh. The order includes 5000 hours parts with payload monitoring system. This prestigious order was bagged against stiff competition in a e-tender floated by MCL.

L&T Wheel Loaders are proven workhorses in the Coal Companies and have been deployed for Coal loading and other operations for the past 7-8 years. With this order, L&T 9020 machines are engaged in the major CIL subsidiaries such as SECL, CCL, BCCL, NCL as well as in Singareni Collieries Co. Ltd. (SCCL). We are proud of our association with all these Coal companies involved in meeting the energy needs of the nation.



*L&T 9020 Wheel Loader engaged in wagon loading application at MCL.*

## Good Show by D85 and GD535



Komatsu D85 Crawler Dozer and GD535 Motor Grader have been growing from strength to strength year on year and performed well despite the pandemic. The machines are showing a good offtake in the market with D85 expanding into newer applications like Irrigation and Iron ore, and GD535 into Coal applications. The financial year 2020-21 saw Komatsu maintain its leadership in 200HP class of Dozers with sale of 80 nos. of D85. Alongside, 43 nos. GD535 were also sold, both in mining as well as road applications.

One of the significant orders during the year is for 10 nos. D85 machines from Mahalaxmi Infra and 8 nos. from VPRMIL. Aggarwal Infra Buildcon placed an order for 4 nos. GD535 for deployment in the Road projects. Both these machines are imported models and shipped to India from Japan as completely built units (CBU). The machines go through rigorous checks before being commissioned onsite.



## Komatsu PC2000 crosses 50,000 hrs in BCML – Setting a New Milestone!

As the largest MDO (Mine Developer-cum-Operator) in the private sector, Essel Mining & Industries Limited (EMIL) operates two major projects — Bhubaneswari Coal Mines and Rajmahal Coal Mines, through its subsidiaries Bhubaneswari Coal Mining Limited (BCML) in Odisha and Rajmahal Coal Mining Limited (RCML) in Jharkhand, respectively.

BCML started operations in 2011 in Angul district under Mahanadi Coalfields Limited. With an average annual capacity of 25 MT of coal production, it has a stripping ratio of 1:0.70. The mining operations took off in November 2011 with two units of Komatsu PC2000-8 Hydraulic Excavator of 12.5 CuM capacity. With increased operations, BCML commissioned two more PC2000 machines of similar capacity in March 2012.

In the initial full year of operation, BCML produced 11.44 MT Coal and was considered the fastest ramp-up of coal production in the Indian Coal Mining Industry. Year-on-year, BCML-Talcher surpassed the targets set by MCL effectively and has been highly appreciated. In addition, BCML commissioned 2 more Komatsu excavators to augment production in the mines.

BCML's professional strategy and product focus has given the company a distinct edge in sustainable and profitable mining of OB and Coal. Today, BCML-Talcher owns and operates Komatsu fleet of 5 x PC2000-8 Hydraulic Excavators, 1 x PC1250-8R Hydraulic Excavator and 2 x GD705A-5 Motor Graders under Maintenance & Repair Contract (MARC) and Site Support Agreement (SSA). The latest to join the site is WD600-3 Wheel Dozer.

Komatsu excavator bearing Serial no. 20374 from the first batch, has crossed 50,000 hours of operation with cumulative availability much higher than the guaranteed availability. Komatsu products are known for their superior quality and deliver excellent results. The L&T team deployed at site has provided round-the-clock service even during the lockdown and is the critical success factor in achieving this milestone.

This achievement has been possible because of an extremely knowledgeable, dedicated, and motivated team at site under the

leadership of Mr. Om Prakash, Chief Operating Officer, BCML. "I am happy to share with you all that the machine which started its journey on 8th November 2011 has crossed 50,000 hours of operation on 1st December 2020. It is also heartening to note that its cumulative availability has been around 94% during this period," he said.

His endeavour for continuous improvement and focused approach to explore reduction in cost per tonne of coal produced has encouraged our team members to work as one team. L&T Team is grateful to Mr. P. Rajarao Patra, CFO, BCML and the senior members of Essel Mining - Mr. Rajinder Singh Malhotra, Mr. Parvesh Garg and Mr. Chandra Shekhar Shastri - who have guided and encouraged the team to rise.

Essel Mining is part of the highly successful Aditya Birla Group, incorporated in the year 1950, and is one of the leading natural resource companies dealing with Iron Ore Mining and Contract Coal Mining. EMIL has been one of the earliest MDOs in Coal Mining in India. The Company has also made foray into dolomite and diamond mining, value-added products such as Pellets and Noble Ferro-Alloys and is operating renewable energy projects in Wind and Solar Power.



Mr. Om Prakash, COO, BCML



The machine that set new benchmarks in the mining industry



## Loyal customers felicitated

L&T has launched an ambitious program to felicitate loyal and long-standing customers across the country. In the first segment, CEB customers have been shortlisted for recognition who have been part of L&T's illustrious and long journey.

The activity kicked off with the felicitation of Mr. Babulal Bansal and Mr. Nitin Bansal, Directors, NTC Ventures Private Limited alongwith Mr. Manmohan Singh, Sr. General Manager, JK Lakshmi Cement at Sirohi by Mr. Vivek Hajela, Vice-President, Construction Equipment Business, L&T.

Zonal/Territory Managers have also been visiting the offices of customers and felicitating them. They are given a specially made plaque befitting the occasion. Most customers are engaged in executing various projects in infrastructure space. Over the years, L&T has been promoting Komatsu equipment for applications ranging from mining, roads to brick-kiln. L&T and Komatsu launched many value-added variants such as Tunnel, Granite Spec and Long Reach attachment in select models. These variants have found acceptance by specialist customers. For a product like PC200-6 Hydraulic Excavator, L&T created a record in India by selling over 14,000 nos.



*Mr. Babulal Bansal, Mr. Nitin Bansal of NTC and Mr. Manmohan Singh of Lakshmi Cement receiving the plaque from Mr. Vivek Hajela, VP-CEB, L&T.*

and was the most successful model in 20-ton class. Its successor PC210-10M0 has also been a hot-selling model, thanks to its strengthened structures and built specially for the Indian applications. Other models like PC71 and Pc130 too, sold through our dealers, have shown remarkable growth due to their flexibility and performance.

Even the indigenously designed and manufactured LTCEL models, L&T 9020 and L&T Compactors have become a hit due to their proven performance in the roads and highway sector and exemplifies the spirit of Atmanirbhar Bharat.



*A kaleidoscope of the customer felicitations done by L&T team across the country.*



## Engineering & Shaping the Future of Sand Manufacturing



Let us start by saying -- Sand is one of the most used natural resources today. The ever-burgeoning infrastructure development has given rise to Sand requirement in a massive way. As per broad industry estimates, for every 1 Kg of cement there is a corresponding need of 3-5 Kg sand depending on concrete grade.

With the tremendous awareness and litigation on the impact of river sand mining and ever evolving NGT (National Green) statutes the share of River Sand Mining is expected to shrink from 80% in 2015 to 60% at present (2020) levels and is further expected (on a base case scenario basis) shrink to 35% by 2025. Hence, this creates a huge market for good quality (as good as river sand) manufactured sand and popularly known as M-Sand.

Before we get into the nuances, standards and applications of M Sand, let us look at how it is popularly come into being in the industry.

Manufactured sand is made by crushing rock/ aggregates. The aggregate crushing process generates a large amount of finer material (between 0- 5mm) which is loosely and popularly called M-Sand. This size range, which may be of improper gradation and irregular shape and with muck has detrimental effects on the concreting process in terms of concrete strength, its workability, surface finish, cement consumption etc.

Therefore, this crusher dust needs further processing to imbibe the virtues, before, truly being called Sand. This is where the L&T with its range of Sand Making Machines / Sand Plants come in.

L&T e7 Sand Plant is a highly automated "Dry" sand plant solution that manufactures 'engineered sand'. At the heart of this plant is a VSI (Vertical Shaft Impactor) and is configured with other key equipment like Bucket Elevators, Blowers, Screens, Bag Filters, Conveyors, Water Mixer Drums and a completely automated PLC system to set patterns and generate real time data on gradation and capacity in automatic mode, based on air volumes generated by sequential control of damper openings and blower frequencies, on pre-selected screen mesh sizes.

A key differentiator for the L&T Sand Plants & Classifiers is, that the same is a "dry" process and it does away with the need of large amounts of water (as in wet washing cyclones) and, hence, also the need for cumbersome sludge management and eventual disposal. We strongly believe, going ahead in future, water as a commodity is going to be extremely precious and any industrial application of the same shall incur massive costs and statutes. Our dry process, hence, ensures our pitch on Environmentally friendly solution, coupled with an economical and efficient solution.

The plants typically accept feed upto 12 mm aggregate, with moisture contents as high as 4% and come in various capacity models from 40 TPH-100 TPH.

The sand produced is specific to user requirement - medium to high strength concrete or finer sand for plaster application. It gives sand particles a rounded, equi-dimensional shape and the desired fineness modulus (gradation) and selectively removes ultra-fines. Concrete made with this sand has higher strength, higher workability, requires less cement and has smoother surface finish.

The Sand Quality produced from L&T's e7 Sand Plants has universally been accepted by its users (since inception in 2017) and has opened a niche segment of high quality premium manufactured sand meeting the acceptance IS standards of IS-383-2016 for Concrete Sand and IS-1542-1992 for Plaster Sand.

This automated dry-air classification system eliminates the need for cumbersome washing and inefficient mechanical screening. It gives precise control over the percentage of ultra-fines from feed of 0-12 mm. It lowers wastage and rejection rates and is of low-maintenance and has proven to provide handsome and quick IRRs for its growing list of faithful clients.

The future seems bright for the segment even as somewhere a river smiles!

L&T Earthmover News - Editorial Team: V.R. Subramanian, Suresh Bhat & Giridhar Gururajan

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