



DEMOLITION & BREAKING EQUIPMENT

BREAKING NEW BARRIERS

Advancements in demolition & breaking equipment have reached new heights.

BY BINDU GOPAL RAO

In India, the concept of demolition has increased in the last 10 to 15 years generally in metro cities where availability of land is less, especially in congested and populated areas where old buildings or structures are demolished to make way for new ones as it offers the advantage of height or to get more area or facilities. Demolition also happens at railways, chemical factories, laboratories, nuclear power stations and defence where hazardous materials such as lead, radiological, chemical and biological contamination might occur and hence health and safety, security, noise, dust, traffic and vibration must be carefully managed. At international levels, technologies to demolish or destruct are very advanced as compared to India since

construction of tall buildings and structures in India started on a very large scale in the last 15 years.

New age technological advancements in demolition and breaking equipment have ensured that there are new designs, hybrid machines and fusion-engineered products now available in the market. "The recent technologies that we have introduced in our range of demolition and breaking equipment are high reach demolition excavators, building implosions and high reach crushers. In excavator demolition method, excavators with shear attachments are typically used to dismantle steel structural elements. Hydraulic hammers are often used for concrete structures and concrete processing attachments are used to crush concrete to a manageable size, and

to remove reinforcing steel. In building implosion method, the technique involves strategically placing explosive charges to remove a building's support structure so that it collapses on itself, causing as little damage to its surroundings as possible and an expert can ensure that the structure falls into its own footprint, so as not to damage neighbouring structures," says Shivam Sadana, MD, Sadana Properties, and chairman, Sadana Security and Infrastructure.

NEW VISTAS

There are several Indian and international vendors offering demolition equipment for various sectors in the country. Volvo CE is one of them. Known for their industry-leading fuel efficiency and productivity, Volvo CE excavators (EC480D, EC750D and the EC950E) are the most popular models for mining, while smaller sites can make use of versatile options such as the EC350D. Nonetheless, the mining industry generally favours higher capacity excavators, and in the class of 50t and higher it is the leading supplier in India and offer excavators up to 100 t-rated machines. "The newer models in our D-series excavators are equipped with G4 work modes that optimise fuel efficiency and performance. These work modes – Idle (I), Fine (F), General (G), Heavy (H) and Power max (P) – are integrated within the throttle control, so that operators can easily select the best one for the task at hand. In addition, an ECO mode automatically switches off the engine, further

reducing fuel consumption. Two of our biggest excavators, the EC950E and the EC750D, also come with an electro-hydraulic system which enhances fuel efficiency while increasing productivity and performance. The electro-hydraulic system uses intelligent technology to control on-demand flow and reduce internal losses in the hydraulic circuit. This provides superior digging force, shortens cycle times, and increases controllability," says Dimitrov Krishnan, VP and head of Volvo CE India.

EFFICIENCY MATTERS

Demolition has become an integral part of the Indian con-



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New age technological advancements in demolition have ensured that new designs, hybrid machines and fusion-engineered products are now available.

struction industry since several independent homes and old buildings are making way for high rises and skyscrapers. This is also why several organisations are in the fray for what is being considered an increasingly complex business that needs a combination of project management and engineering skills to be effective and efficient. Deepak Garg, CEO, Sany South Asia, explains, "Our equipment efficiency, the R&D that we do, the efficiency of our whole you can say power train is much more efficient and the customers derive benefit in terms of lower fuel consumption and better productivity. So even SY500, the ruggedness of the machine the excavator for mining is much more rugged excavator, the fuel economy per ton, when you calculate for mining it's per ton fuel consumption, or like our mileage for cars. So that is much more fuel efficient now in these new machines. So this is mainly because we use electronic controls and we use very efficient hydraulic systems. So these are third generation hydraulics from Japan that we use on our equipment. So all these equipment that we are launching are much more fuel efficient, very highly productive and cost per ton or cost per cubic meter to the end client is much better 5% to 10% better compared to the current products that are there in the market." Again, for operators, the operator comfort is more important. "So all our equipment has got a lot of comfort and their controls are very flexible, very simple. So that is there, and all cabins and all are air conditioned. So operators do not have any fatigue in the operator's cabin. All the cabins have a rollover protection, a fall over protection. So in case of any rock falling, or any toppling the operator will be safe. So cabins are designed like that," adds Garg.

Demolition is one of the most demanding applications, in terms of working environment. However, it requires equipment to work in hazardous and dusty locations on uneven ground conditions and machines often work towards the upper limits of their abilities. One of the safest and eco-friendly methods

for controlled demolition, dismantling and selective demolition is said to be diamond sawing. Diamond Wire Saws technology uses wires of various diameters and lengths that has been impregnated with diamond dust of different sizes. Being known as the hardest material on earth, diamonds ensure that this cutting-edge technology helps cut large and heavy reinforced concrete, masonry, steel and rock efficiently. Likewise it is an ideal choice when time and work space is limited and vibration and impact shock cannot happen. "All technological advancements we include in a design assess factors such as the cost, maintenance and performance of that machine. For example, we might develop a new design that improves performance on the job site for the labourers and to meet the site requirements. But if it adds too much cost to make the machine profitable for owners, or if it requires too much additional maintenance then we do not include it," says Sadana.

"Looking ahead, we will continue to focus our innovation around the three guiding principles of the Volvo Group: quality, safety and environmental care. Similarly, our attention to greater safety has helped us create some of the



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Volvo CE ensures that its equipment offers hallmark qualities such as fuel efficiency and productivity levels.





“WE FOCUS OUR INNOVATION AROUND THE THREE PRINCIPLES OF VOLVO: QUALITY, SAFETY AND ENVIRONMENT.”

DIMITROV KRISHNAN

most advanced operator cabs in this, or any, industry,” explains Krishnan.

MARKET DRIVERS

With rapid urbanisation, there are a lot of redevelopment projects being carried out in terms of the total spend on demolition & breaking equipment. However, actual spending on the demolition and breaking equipment/process depends upon the area, location of the project and the type of technology in use. Again, the recent momentum gained by infrastructure projects in India and spike in sales has started to reflect this positivity. “We keep a tab on the latest infrastructure market trends. There is more demand for infrastructure development and demolition too. We are planning to introduce innovative development and demolition equipment. The infrastructure market is huge and sales depend on the project,” avers Sadana.

Krishnan adds, “India’s push to expand connectivity among its population and business centres presents a huge opportunity. Infrastructure development continues to be the key growth driver in our economy and while the country is making strong progress there is still much to be done. We remain the only major manufacturer present in all equipment sectors: mining, road building or general construction. Whatever the demands of the job, our equipment offers hallmark qualities such as fuel efficiency and productivity levels that can deliver savings they want but without the need to take on newer hybrid systems, instead utilising proven designs.”

TRAINING RIGHT

Another equipment maker, Sany India has an overseas operator training centre as well as a technical training centre for Sany Equipment and does continuous operator trainings for their customers. “We also work with operators from scratch.



This is an ongoing activity, and we would do close to 1,000 operators training per year. Similarly we focus on technical trainings because this is a base to keep the equipment in healthy condition. Of late, Sany has also partnered with Skill Council, which is under the Skill Development Council of India and Sany’s training centre has been approved as one of the key training centres. In fact we have just started that programme with the Infrastructure Equipment Skill Council and have signed an MoU between Infrastructure Equipment Skill Council and Crane Owners Association of India to develop operator training programmes through Sany,” avers Garg.

All Sany excavators are connected to their call centre into their central monitoring centre, called ECC or the Enterprise Control Centre which is connected through a GPS. This ensures that all their customers get the information about their machines every day in real time. Sany also has a centralised monitoring system, so if there is anything abnormal can be tracked. There is full connectivity of their equipment to ECC.

TREND CHECK

India is a growing economy and has a lot of scope of infrastructure development and demolition. Soon the nation will have easier and cost saving demolition machines. Over the next five years, this sector would have more efficient, safe, cost and time saving machines and methods of demolition. With government sponsored efforts like Smart City, highway projects, ports development, metro projects and the new momentum in mining are some important spaces where the industry can make an impact. Likewise, highway and road widening projects and large format real estate projects like mixed developments which are fast becoming popular augur well to ensure that demolition and breaking equipment will indeed be path breakers in more ways than one. **CV**