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Buying Tips: Crushing & Screening Equipment

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Buying Tips: Crushing & Screening Equipment



Featuring the tips to buy crushing and screening equipment for road building.

In India where the use of concrete and road aggregate has continued to expand due to the development of needed infrastructure, the use of good quality stone crushing equipment is very handy

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Piero Guizzetti,
CEO,
MB Crusher India Pvt Ltd

for a busy contractor with tight deadlines to meet, says Supreme Infrastructure India Ltd's, Assistant General Manager – Procurement, Pankaj Udeshi.

Talking about what are the points to be considered for buying crushing and screening equipment for road building, Piero Guizzetti, CEO, MB Crusher India said, "The most important aspects of procurement decisions are related to the technical and financial parameters of the client requirements."

On the technical side, he adds, it is important to understand the type and size of materials which is to be crushed and/or screened, the application, the intended use for the crushed material, the level of personnel and machines to be allocated, and the type of site one has at its disposal.

Supreme Infrastructure India Ltd is a major EPC player having expertise in executing several large-scale projects by various central government agencies, state government agencies, municipal

corporations and corporate houses. Though the company has not procured any crusher in the last two years, they have the strategy towards acquisition of quarrying land and bidding for projects that enables it to bid competitively around quarrying land and improve success ratio. It also ensures considerable reduction in input costs due to proximity of sites, admits Udeshi. He adds, "Except our permanent crusher where we have our own land we prefer compact and mobile crusher which we can move from site to site after completion of project with minimal logistical hassles."

Crushing plant is a high value acquisition for any construction and mining company. With current government's focus on making concrete roads has brought in sudden surge in requirement of crushing plants in Indian market. High volume requirement of aggregates in projects has lead on creation niche business companies working delicately on crushing business. "Major infrastructure companies have

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Ratan Lal Kashyap, Sr. Vice President-Procurement, G R Infraprojects Ltd

changed the business model by subletting the aggregate supply by dedicated agencies with commitment of supply instead of having own crusher and putting more focus on their core business of road construction," informs Ratan Lal Kashyap, Sr. Vice President-Procurement, G R Infraprojects Ltd.

GR Infraprojects Ltd owns fleet of crushers with mix of wheeled plants and track mounted crushers. All these crushers are working on various project sites and mostly run on AMC by OEMs as this helps GR Infra ensure control on cost, quality of product, commitment on productivity and maintenance of plant as per OEM's recommendation leading to extended crusher life.

Here we explain some of the crucial points to be considered while buying crushing and screening equipment for road building:

Cost matters!

According to Piero Guizzetti, "On the financial side, CAPEX is one consideration but operational and life cycle costs are increasingly becoming the key factor for purchase decisions in India. This analysis requires one to look at the entire process associated with alternate solutions, as opposed to just the crushing and screening

activity. Hence, considerations such as transportation costs of the materials to and from the site, to and from the crusher unit, become important, as well as fuel costs, personnel, maintenance costs, procurement of materials and so forth."

With MB products, the savings are easily recognisable, asserts Piero Guizzetti. He adds, "Transportation costs are eliminated and fuel costs are reduced. The personnel requirement is also minimised, as a single operator can also easily manage the crushing or screening activities as well as the maintenance requirements of the machine which are easy and economical. Finally, there is no need to procure materials as the output may be directly applied at site and/or sold to the market."

Focus on performance

Highlighting the points to be considered for buying crushing and screening equipment, Udeshi said, "We agree that we are very much price sensitive but right quality always breaks the price barrier. While procuring crushing equipment, we never think about the price because we know that CAPEX is our investment and operating expenses are recurring. Minimising CAPEX only leads to increased down time, higher operating costs, fail in achieving production target and losing money with various other new reasons. In simple word, our procurement strategy is best product at the best price without compromise on quality and service."

However, Ajay Varma, Director, Marsman India suggests, "Compare apples to apples!" He said, "It's easy to get caught up in price. While saving money is important, so are the extras that will save time and money in the future. Take, for example, a crusher's discharge chute. This area of the machine is under a lot of stress for the majority of the machine's run time, and as a result it requires regular maintenance."

Most machines need wear-liner replacements on a regular basis. Some machines, however, have a specially designed discharge rock box that eliminates wear-liner replacements. The specialised design uses a shelf system with

an abrasion-resistant wear bar that allows crushed material to build up and act as a wear liner. The result is dramatic savings in labour and wear parts.

Brand matters!

"A good brand name is very important when purchasing a crushing plant because it is an indication of reliability, higher production and best quality of final product," said Udeshi.

Versatility

Road building requires crushed product size of below 53mm. Cubicity of the product is a major requirement for road projects and it is very stringent for NHAI projects. To meet the specification of flakiness and elongation combined of less than 30 per cent, one needs a three-stage plant i.e. Jaw+Cone+ VSI. Further road building has a peak and low demand of various mix of aggregates, for Granular Sub Base (GSB), Wet Mix Macadam (WMM), and asphalt top layer. It is very important for the crushing plant to be designed so that the road contractor can produce what he wants. Proman plants are built keeping that in mind, claims R.S. Raghavan, Managing Director, Proman Infrastructure Services Pvt Ltd. He adds, "The role of the VSI in the crushing plant is the key and Proman REMco VSIs have proved that time and again. Other than combined with Proman Jaw and Cone

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Director,
Marsman India Ltd

Crusher we have retrofitted many of our VSIs with existing two-stage plants which were struggling to produce the quality and gradation of the products."

MB crushing and screening attachments are utilisable with any type of material, even the hardest and most abrasive ones. The unparalleled breadth of our product portfolio enables us to also satisfy any output size requirement. The material can be used directly on site without any need to buy or hire any other resource or equipment. As a matter of fact, they are completely independent and do not require any additional operator as a static crusher would require. Finally, Piero Guizzetti claims, "MB products can be applied at any site, even the hardest to reach and most austere in terms of terrain."

Manufactured sand at an affordable cost

Proman has collaboration with the international companies like AEI, REMco and Finedoor. Proman REMco Sandmax VSI is exclusively designed to produce sand and other fine products. It produces manufactured sand from hard abrasive rock at an affordable cost, Raghavan further claims. "REMco Sandmax VSI can be custom engineered to meet specific sand production requirements. They VSI



(Image: Marsman India)

offer unmatched advantage in terms of power consumption. Better design and material technology guarantee lesser wear cost per tonne. Higher feed size upto 75 mm is possible with REMco Sandmax VSI."

Easy to maintain

REMco VSIs are easy to maintain as they can be serviced from the top. The tips are 'insert' type unlike the traditional 'bolt on' type used by others. Lubrication is also easy as greasing can be done through centralised greasing block. These VSIs possess impressive structural integrity as they are heavier and built like crushers and not just shapers. Proman has recently launched oil lubricated VSI which has further pushed the performance envelope of the company's VSIs.

Proman has been offering screening solution for making plaster and concrete sand through dry process. The company has been supplying Ortner for washed concrete sand. "We have now launched our Washed Sand Group (WSG) which includes a split dewatering screen, hydro-cyclone and thickener for producing both washed concrete and plaster sand simultaneously," informs Raghavan. Proman has a state-of-the-art factory in Bengaluru.

Determine plant location with rock quality

Acquisition of crusher has many criteria which start with the total volume requirement size and shape wise with time frame of requirement. This helps one freezing on the capacity of plant

with stages of crushing to be done. "The location of the plant with quality of rock to be crushed is must to be shared with the OEMs as they help to select the appropriate crushing plant," says Ratan Lal Kashyap of G R Infraprojects Ltd.

Understand crushing flow sheet

OEMs propose crushing flow sheet which helps buyer understand the total feed material with output size wise. Understanding the flow sheet by a buyer is very important to take any procurement decision as this flow synopsis reflects total crushing operations with productivity. "The feed gradation and output product ratio with tweaking on CSS settings can help understand the flexibility of plant production product wise," observes Kashyap.

Consider the aftermarket support

Commercial offerings on high competitive market with aggressive sales by all OEMs at times become confusing for buyers to make final decision, Kashyap reveals. He recommends, "One has to be judicious and also consider the aftermarket support commitment with team size and geographical reach. Today leading infra companies tend to finalise the AMC along with plant to cap the cost of operations."

Choosing the right crushing equipment comes down to examining each unique application and the desired output. A short visit, a couple of questions and a thorough evaluation of a crusher owner can save one from the many turmoil that come with selecting a wrong crusher, believes Ajay Varma of Marsman

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Managing Director,
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India Ltd. He outlines a few critical points to be considered when it's time to add a new crusher to your operation:

Evaluate your application

The most critical factor here is the level of hardness of the material to be processed. This is typically measured in compressive strength or the maximum force that material can withstand before breaking. Primary jaw crushers process hard, abrasive materials such as granite, ores or recycled concrete. Cone crushers are known for their ability to crush hard, abrasive ores and rocks, but they are best suited for secondary crushing applications. Impact crushers are ideal for contaminated materials. They easily handle clay, dirt and metal mixed in with the material. While they can handle hard material, they are ideally suited for soft to medium rock.

Determine your desired output

If an operation can sell 192,000 tonnes per year, its crushers need to produce 1,600 tonnes each month. If a crusher is set up to run five days per week for eight hours per day, the operation will require a machine capable of processing just over 100 TPH. Proper production capacities are critical to the success of a business. A crusher that is too small fails to produce the desired tonnages, which limits yields and profits and caps the organisation's



growth potential. A machine that's too large carries extra expense with no added value.

Consider mobility

Stationary crushers offer the benefit of a custom, heavy-duty design. However, mobile crushers allow operators to move the unit closer to the face of the crushing activity. Wheeled mobile crushers can be hooked up to a truck and hauled to different locations or relocated on a jobsite. These units are the need for generator where electricity not available at jobsite.

Attention to detail

A crusher needs to withstand daily abuse. Investing in quality equipment and components upfront will save money in the long run. Before making a purchase, evaluate the quality of some of the crusher's components.

Be sure the motor or generator and control panel has a good reputation and can meet the operation's output needs. Note the hopper size - an oversized hopper can accommodate larger equipment used to feed the unit.

A crusher's discharge chute is under a lot of stress for the majority of a machine's run time, and, as a result, requires regular maintenance. To eliminate these extra costs, look for the specially designed discharge rock box that reduces the need for wear-liner

replacement. The specialised design uses a shelf system with an abrasion-resistant wear bar that allows crushed material to build up and act as a wear liner. The result is zero maintenance, which translates to savings in labour and wear parts.

Abrasion-resistant transfer points will provide the extra strength needed for certain applications, greatly reduce costly replacements and prevent downtime. Be sure other components such as conveyors, bearings, rollers, shafts and drives are robust and built for high wear.

Marsman India Ltd is an ISO 9001-2008 company and is one of the leading manufacturers of crushing and screening equipment in India. "Our equipment offer high production at minimum electric power consumption," claims Varma

Marsman's product catalogue consists of jaw crusher, impact crusher, mobile crushing unit, vibrating screen and vibrating feeders of various capacities ranging from 50 TPH to 1,000 TPH. Apart from supplying individual machines, the company also caters to projects on turnkey basis. Marsman offers a wide range of mobile crushing solutions for quarrying, recycling, mining applications, aggregate production, coal production, iron ore and cement production. Marsman also offers cone crusher and vertical shaft impactor manufactured in its sister concern company Shakti Mining Equipments Pvt Ltd. ■