

PORTABLE MACHINE SIZE MATTERS

by Paul Smith



Sports fans know the best athletes are not always the biggest.

While I would not expect a 150-lb. forward from the Argentinian national soccer team to be capable of blocking a 330-lb. defensive end blitzing an NFL quarterback, I doubt the same defensive end could keep up for 90 minutes on the soccer field.

Just like in sports, portable machines are specialized to perform certain tasks. While the natural tendency is to assume bigger is always better, in today's environment where portable processors require the ability to be more nimble in order to maintain a competitive position, a recent global trend for smaller machines has emerged over the past few years.

Take screening plants as an example. When I started my career back in the late 1980s, a 6-ft.-wide portable screen was typically the largest truly "portable" plant around (although some larger models were also on the market). These larger screens were mostly electric, and they weren't designed to be mobile in the sense that they were not designed for rapid deployment. The machines required external power sources, transfer and discharge conveyors, a feed source, and more.

The market reacted with "portable screen plants," which were essentially portable hopper / conveyors with a small shaker head suspended off the end. While not highly productive or efficient, the fact that they were self-contained with diesel-hydraulic power units and were easily towed made them a hit with small contractors. Dealer rental fleets swelled with such plants.

Almost immediately, hydraulic portable conveyors also surfaced as a product delivery system to be paired with such plants. These stackers were usually sold in 60- to 80-ft. lengths up to 30 in. wide, and they were driven off an auxiliary hydraulic pump from the screen plant's engine.

DIRECTIONAL SHIFT

Innovation stepped in: producers wanted more with less. They wanted more screening capacity and fewer loads. A new configuration was developed with an overhead feed conveyor and on-plant foldout stackers. This allowed screens

to be supported by the main frame and not suspended by the conveyor frame, which enabled installing wider, higher-production, more-efficient screens.

Configuring these screening plants on track carriers was a natural evolution. Driven by the demand to pair with the parallel offerings of high-capacity track crushers, 6-ft.-wide screens in just about any configuration were appearing by the mid-2000s at expositions and on supplier websites.

Of course, there were trade-offs. Fewer loads by eliminating portable stackers resulted in smaller stockpile capacities – a problem compounded by the increase in production, which generated the piles faster. This burdened loader operators by requiring them to manually manage the piles before burying the plant. The plants simply could not accommodate a design with adequate stockpile capacity due to spatial and power constraints.

Developing track conveyors was inevitable. While "devolving" back to multiple units, these track conveyors – initially thought to be a fad – turn out to strike a tuning fork with the market. Being self-contained, they opened up the screen plant to use its limited power for properly screening material. Being easily mobile and relocatable, track conveyors were an instant hit as rental units. Within a short period of time, a full array of track conveyors hit the market, including telescoping designs, truck unloaders and just about any size of stacker.

For many reasons, the market winds shifted and, suddenly, those interested in mobile machinery weren't necessarily looking for higher-capacity screens. Domestic producers were looking for smaller, less expensive machines to rent or purchase to reprocess existing piles or to take smaller-volume jobs. Globally, infrastructure development accelerated in more remote regions where remote processing autonomy and accessibility trumped high capacity. People were suddenly back in tight jobsites again. Smaller screen plants were back in business.

The benefits are obvious: simplicity, portability and cost. From a technical standpoint, smaller screen boxes are inherently stiffer and more

robust, making them more tolerable of heavier scalping applications. Screen media changes are quicker, and the entire plant is easier to operate and maintain.

Such plants are much easier to transport and set up, and they're significantly less expensive. They often do not provide any significant auxiliary power, and the intent with these plants is often to pair them with track stackers when larger stockpiles are required.

From an application standpoint, the smaller screening plant is limited. It obviously won't be able to break through the defensive line in the same manner as the all-pro 260-lb. running back. However, if used in the right position, you should expect such an athlete to put up plenty of points on your scoreboard.