Paul Masson Improves Winemaking Process With New Pumps

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In an ongoing effort to improve its winemaking operations, Paul Masson Vineyards introduced innovations that save the company time and money without sacrificing quality.

During crush the Madera, Calif.-based Paul Masson Winery typically processes 2,000-2,500 tons of grapes per day, averaging a total of 80,000 tons a year. After the grapes are harvested, the trucks are unloaded into a large hopper and augured to a crusher/de-stemmer which gently removes stems and leaves as it feeds the grapes and juice into a hopper. From there they are gravity fed into a pump, which moves them through extensive piping to the processing tanks.

Dave Weber, Paul Masson's winery engineer, explains the ideal winemaking scenario: the must will contain berries that are virtually intact except for removal of the stems, producing a high quality juice and large yield at drain, with a minimum of solids.

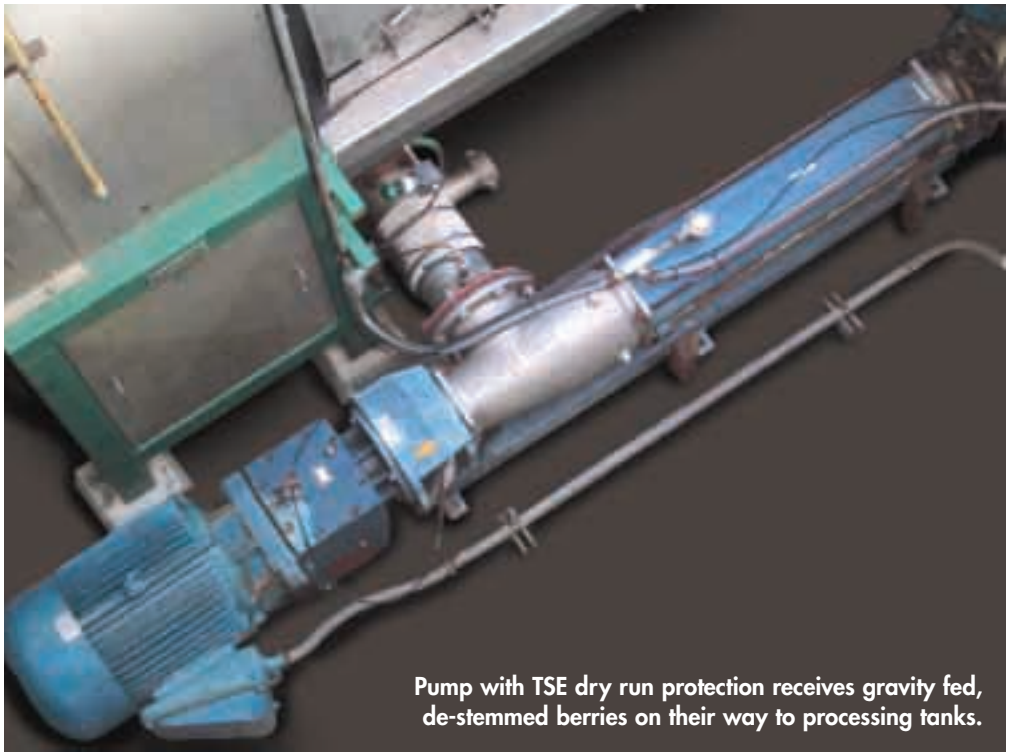
When Paul Masson winemaker Tom Bell called on sales engineer Jim Gladders at R.F. MacDonald Company in Fresno, Calif. a few years ago, he was experiencing several problems with his facility's centrifugal pumps, which were greatly reducing his plant's efficiency. He needed to reduce the amount of solids generated during processing. "I knew about progressive cavity pumps," Bell says, "and thought they could be the solution we were looking for."

The first problem was that, as the level of grapes and juice entered the de-stemmer hopper, an attendant was required to visually monitor the must, turning the centrifugal pumps on and off to adjust the level. Without this intervention, too little juice entering the centrifugal pumps would cause cavitation, and too much would cause back up, shutting down the pump and eventually the whole line. At this point, the prospect of wasted manpower and fruit became real concerns.

Following final pump inspection, Dave Weber, Winery Engineer, is ready for harvest and crush.

A second problem occurred in the processed juice, which was too high in percentage of solids. Excess solids were caused by the tendency of centrifugal pumps to damage grapes, chopping them into small pieces. Not only would they shred the skins, compromising the quality of the juice, but further clarification would be required prior to fermentation.

Thirdly, as wineries turn increasingly to mechanical harvesting of grapes, the trade-off for harvesting speed is the occasional introduction of MOG (material other than grapes) into the grapes and into the pump. Centrifugal pumps were often unable to handle



Pump with TSE dry run protection receives gravity fed, de-stemmed berries on their way to processing tanks.

act on. The sp ral ng cav t es allow the fruit to proceed from the de-stemmer to the fermentation tanks with minimal damage, yielding virtually whole grapes. In this way, the second problem, excessive percentage of solids, is solved. Bell reports that "the gentle handling of must increased the drain yield by 25% and reduced solids to 6-8% in the press fractions, even better results than we had predicted." Less solids means not only less strain on the equipment at the clarification stage of the process, but a higher quantity and quality of juice.

The third problem the PC pumps solved was the movement of MOG and the leftover solids through the system. Each of the fixed cavities in the BN 130-6L pump has a volume of nearly seven liters. Since the cavity does not change its shape while pumping action occurs, large pieces of MOG can be passed without causing damage to the pump's mechanical components. The progressive cavity pumps are able to handle the slurry with ease, moving it to the end of the process where it is further pressed into a dry cake for uses in other industries.

Bell and Weber maintain that they are very satisfied with the pumps, which have been in place now for three years. "I insisted on PC pumps because I knew they would be the best value with fewer line breakdowns and repairs," Bell says. "In three years, we have experienced no downtime caused by the seepex, Inc. pumps." Weber adds, "The entire process is more efficient and cost effective." Both Bell and Weber state that when the winery used centrifugal pumps, they were able to process only 1,600 tons of grapes per day during crush. Now, they report, the winery can process 2,000 tons per day, increasing production and quality. Improved operations at Paul Masson Vineyards translate into lower costs, increased productivity, higher profits, and consistently high quality wine.

these foreign objects, which could include rocks, tools, pieces of wire, even clothing items. Once again, the line would shut down while personnel intervened to remove the offending objects from the jammed pump, wasting manpower, causing costly, time-consuming repairs and threatening the fruit's stability.

To solve these three problems, Gladders recommended seepex, Inc. progressive cavity pumps. Seepex, Inc., which has manufactured progressive cavity pumps for more than 30 years, designed a system for Paul Masson which utilized the manufacturer's close-coupled BN range 130-6L pumps.

The pumps are sized to receive must from the de-stemmer via an 8-inch flanged inlet and discharge the grapes at 50 psig to the fermentation tanks. All elastomer parts, including the stator, are made of Perbunan rubber. All internals are stainless steel and the rotor has the extra protection of .012 inches of Duktil® coating with 1600 Vickers hardness to prevent wear. The pumps are equipped with the seepex, Inc. TSE dry run protection device. The system can handle 100 tons of grapes per hour.

Weber says that upon installation of the new system, each step of the wine making process improved dramatically.

First, the variable speed drive of the pumps follows a signal from the pressure transducer (which indicates the levels of the must in the de-stemmer hopper), speeding up or slowing down the pump as appropriate. Thus, Weber points out, "manpower to attend this part of the process is supervisory only."

In operation, the seepex, Inc. positive displacement pump's single helix rotor turns within the unit's double internal helix stator to form sealed cavities that create the pumping

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