WINERY LIFT

GRAVITY MAKES THE WINE, PFLOW TAKES CARE OF THE REST

Joseph Phelps Vineyards (JPV) has long been known worldwide for its Insignia label of wines, featuring a signature blend of Cabernet Sauvignon and red Bordeaux varietals. For 35 years JPV had also been making Pinot Noir and Chardonnay from its Napa Valley winery.

As the business prospered, JPV determined that the quality of its Pinot Noir and Chardonnay wines would benefit if their grapes were grown in a cooler climate. In 1999, Phelps began developing 100 acres of vineyards just outside of Freestone, California on the Sonoma Coast. In 2005, construction began on a new winery which was completed in time for the 2007 harvest.

The JPV Freestone winery, built into a carved-out area of a small mountainside, was designed to accommodate gravity flow wine making. The gravity fed technique allows the grapes, juice and wine to flow downward during the fermentation process, without the use of pumps or mechanical force common to one-level cellars. This more gentle process enables the wine to naturally extract color, flavor and tannin with minimal oxidization, resulting in a better wine.

A critical infrastructure component in the three-level facility is a PFlow F Series vertical reciprocating conveyor (VRC). It features a 10 ton lifting capacity, a 12 ft x 12 ft lift carriage, and a travel distance from the bottom floor to the top of just over 26 ft. Though the VRC is in service throughout the year, during the peak harvest season (August - November) it is in constant use for 12 to 14 hours a day.

Because the facility is built in to a mountainside, the top floor is the primary entry point, and is referred to as the ground floor. Here grapes from the nearby "estate-owned" Joseph Phelps vineyards are de-stemmed and processed, then put into chutes where they fall into tanks on the second level to begin the fermentation process. The grape juice that becomes wine is gradually transferred via gravity through a set of stainless steel hard lines to the barrels on the third floor, where it is then stored during the barrel aging process.

Other than gravity, all other vertical motion involved in the winemaking process is provided by the PFlow 4-post VRC. Materials moved up and down throughout the season include a fork lift, full and empty barrels and crates, vats, hoses and press pans with pomace to be disposed of after the grapes are processed. Once the wine is bottled the VRC can fit nine pallets of finished cases.

Access to each building level is available from the outside along a steep service road built into the mountainside. Vehicle travel along the steep road is a safety concern, so loaded forklifts typically enter through the third floor loading dock, and are also moved on the VRC, usually with load on-fork.

DW Nicholson, a PFlow dealer in Hayward, CA, consulted with the JPV owners and architects 18 months prior to the start of construction, helping specify the type, size, features and placement of the VRC that would best support the gravity fed winemaking process. DW Nicholson, who also installed and currently performs regular maintenance on the lift, has been involved with many PFlow VRC installations on the west coast.

ENGINEERING CHALLENGES

The F Series is positioned flush into one of the two building corners that abuts the carved out area of the mountainside. All four posts are secured firmly in the ground, with the corner and the two adjacent walls providing the necessary additional support for three of the VRC's four posts. The fourth, outermost post is considered "naked," because it has no parallel structural support.

"The lift at JPV Freestone required a special engineering review to accommodate the seismic bracing needed in California, with a specific focus on the column that is not in proximity of a structural building component," said Scott Flores, the DW Nicholson manager on the JPV project. "The engineering firm of Ficcadenti, Waggoner and Castle reviews all of our VRC applications that require wet stamped bracing packages in order to get the necessary permits."

Cable actuated deck-locks were installed at the top level rather than typical air activated technology in order to honor JPV's request not to install air hoses in the vicinity of the natural, gravity fed winemaking process.

"The PFlow VRC is a very important piece of equipment in the Freestone winery, the ideal operational complement for our gravity flow winemaking process," said Justin Ennis, JPV Firestone winemaker

who joined the winery shortly before the new facility was opened. "It keeps all aspects of our operation supplied and moving, and it adds a great element of safety by keeping the forklifts off the steep roads that access the facility."

"With simple controls and the appropriate safety features the VRC is very easy to operate. Most members of our staff have been trained to use it, including our annual group of college interns," added Ennis. "The VRC is well maintained and is in tremendous shape. And if we need anything DW Nicholson is always right there."