Co-Packer Dramatically Expands Wine Canning Capacity

In just two years, Free Flow Wines increases its wine-canning capabilities from one semi-automated line to three, adds a fully automated 300-can/min line, and triples its production space.

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Per TTB regulations, 250-mL cans are packed in four-pack cartons, which are then loaded into trays on the Ocme tray/case packer.

Making its debut in 2003 with The Family Coppola's Sofia Blanc de Blancs Mini California wine in a 187-mL can with straw, the canned wine market took more than a decade to take hold. But taken hold it has, with a 69% increase in sales from mid-2018 to mid-2019, representing nearly $80 million, according to data from Nielsen. And the category is showing no signs of slowing down. Year over year, wine in cans is on track to grow at least 10%, increasing from 1% of the $70 billion wine market in 2019 to 10% in 2025.

That last prediction was from Rich Bouwer, President of Free Flow Wines, who spoke to The Wine Industry Advisor in December 2019. Bouwer's Sonoma,

CA-based company is on the forefront of the canned wine industry, co-packing 73 SKUs of canned wine for 30 wine customers, among them some of the top wineries in the country. In mid-2017, *Packaging World* magazine visited Free Flow Wines at its former facility in Napa, CA. At that time, the company, which had until then been solely focused on filling wine in kegs, had just begun operation of a semi-automated 40-can/min Codi can-filling line for wine.

During the visit, Jordan Kivelstadt, co-founder and then CEO of Free Flow Wines (he serves on the company's Board of Directors now), shared that the company was already struggling to keep up with an overwhelming demand for canned wine. "In the world of being a CEO, you wish you had a crystal ball so you could clearly see what things look like a year down the road, because it would be a lot easier to plan. But we don't have that," he said. "When I made the request to the board in August 2016 to install a wine canning line, cans had just taken their first little surge forward, but there still wasn't a lot of product on the market. We only had a few customers banging our door down to can their wines right then and there. But we've just seen that grow, grow, grow. The response we've seen from the industry has been astounding. We're just scrambling to keep up."

Had Kivelstadt had a crystal ball, he would have seen that Free Flow was on the cusp of incredible growth. After just one year, the company was producing two sizes of canned wine on two Codi counter pressure fillers and was looking for a new and much larger facility to accommodate its rapidly expanding business. In January 2019, it began operation in a new, leased plant that—at 58,000-sq-ft—is three times the size of its former Napa facility and is equipped with $10 million of new machinery. Housed in the new Sonoma plant are three Codi fillers and the crown jewel of the new operation: a fully automated 300-can/min filling line anchored by a state-of-the-art Krones Craftmate filler coupled with a Ferrum Canning Technology can seamer.

Consumers driving canned wine

Portability, health consciousness, novelty, sustainability, approachability, and fun: These are some of the factors driving the popularity of canned wine among consumers, says Heather Clauss, Chief Commercial Officer for Free Flow Wines. "The approachability of a can is engaging a whole new set of

consumers," she explains. "And so, those who might be intimidated to pick a bottle of wine up off the shelf are much more apt to pick up a can and try that. We believe cans are helping to grow the wine consumer base as a whole.

"And then of course there is the millennial interest in something new and interesting. The products we're putting into cans are all new and a little bit different. A lot of the spritzers are new and unique in their format. We just did a coconut rosé—we've never seen anything like that." Lower in calories and in alcohol content, wine sprinters also align with the growing wellness trend among the younger generation, which is increasingly making the switch to more healthy beverages and those with lower alcohol content.

"There's also the sustainability piece. So many beverages are currently in PET, and we're seeing a huge trend where consumers are choosing more sustainable packaging. These cans, if you see them in the recycling bin today, will be new cans in 60 days. That's incredible. Aluminum has the highest recycling rates of any material.

"I think there's also a fun factor to it as well. Look at the designs. They're fun, they're hip. You feel cool with one of these, right? There's no pretense."

This lack of pretense may have been what caused the slow adoption of this format, as wine drinkers were skeptical of the quality of wine in a can. But Clauss notes that there are some very good-quality canned wines. "Although I don't think people are looking for high-end red wine in a can, per se," she adds. "I think they're looking for a more approachable wine, one that's easy to drink. If they're looking for an ultra-premium wine, they're not going to choose a can. That's a different use occasion.

"The use occasion for canned wine is, 'I want something that's easy to drink, tastes fresh and delicious, and I can take it anywhere in my backpack and crush the can when I'm done and have no waste.'"

Another factor propelling wine in a can is the stagnation in the beer industry, which has driven some companies, including large beer producers, to branch out into wine. One example is Anheuser-Busch, which purchased canned wine brand Swish Beverages in mid-2019.

But the growth of canned wine is not the only reason for Free Flow's success in this area. "I think across the board, you can speak to any of our customers or anyone we've worked with, and they can attest not only to the level of wine-focused quality that we provide, but also our service," says Clauss. "We never say no. We always work with customers to achieve their goals. I think we're well-respected for understanding how to package wine."

Adds Free Flow Vice President, Operations Rob Perman, "All the wine-making services we offer prior to packaging, such as the addition of carbonation and blending, you can't find anywhere else."

Quality comes first

To design the new filling line for its Sonoma facility, Free Flow worked with Altamira, a firm that specializes in engineering and project design for beverage processing and packaging lines. Altamira helped Free Flow select the best equipment for its requirements.

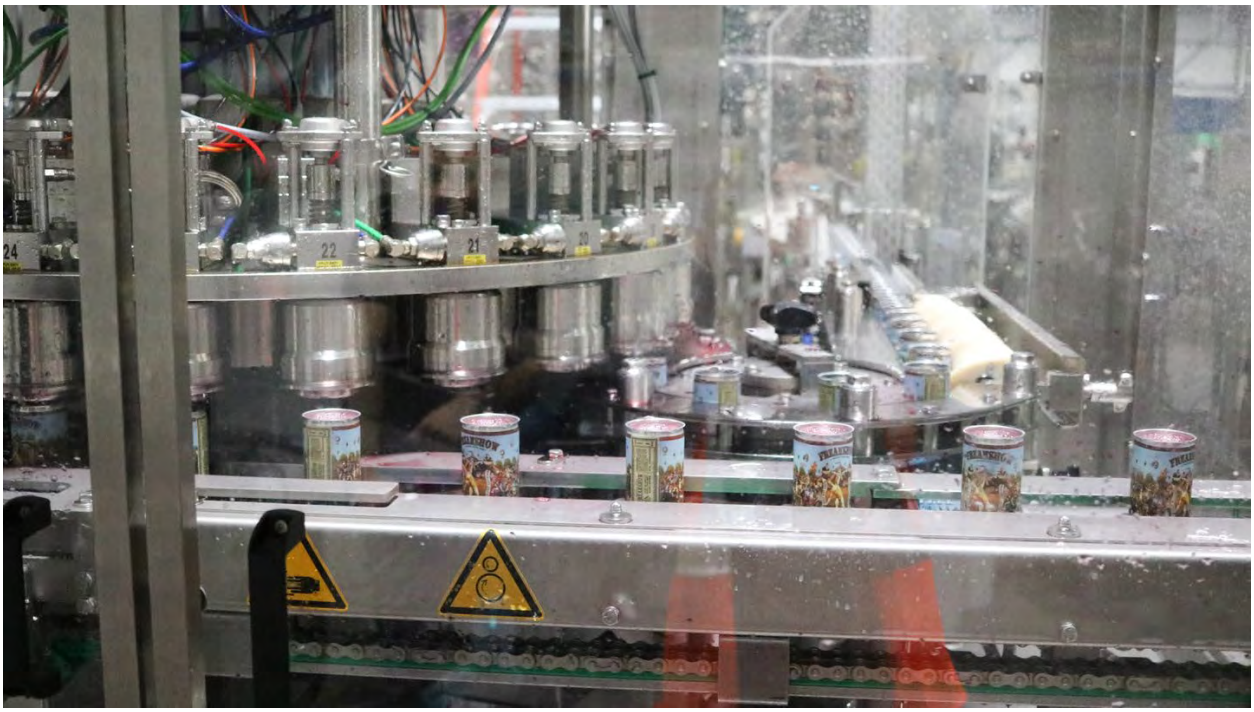
According to Perman, although flexibility, speed, and ease of changeover were very important considerations, "the main goal of the line is to produce the highest quality products." He adds, "So first and foremost it was quality, and then we backed into everything else from a quality standpoint. We really needed to look at how we could ensure that once the package is palletized and gets to the end user that it's at the highest quality it can be, eliminating any loss or damage."

The new line is anchored by a fully automated 300-can/min Krones Craftmate filler, engineered specifically for lower-output needs of craft brewers.For the filler, Perman wanted a volumetric fill, so that Free Flow could control the volume of the product going into the can. Developed specifically for the lower-output requirements of craft beer producers, the Krones Craftmate can filler uses 24 electro pneumatically-controlled filling valves with an inductive flow meter that can determine the fill quantity to the exact amount. Ensuring the correct fill is an under/over fill detection system, part of the Filtec Intellect+ inspection platform.

The second most-important piece of equipment was the can seamer. Free Flow chose a four-head rotary seamer with four seaming stations, the F404 from Ferrum. “We did a lot of due diligence on which was the best company to work with from a seaming perspective, and Ferrum was the one that kept coming up,” says Perman. “We’ve seen the quality that the Ferrum produces, and it allows me to sleep at night, knowing we’re getting a really consistent seam.”

Confirms Free Flow QC Manager Chad Morgan, “The Ferrum was tested with all can sizes, and it consistently stays in-spec. We check everything before we start, and then every hour. So we are still doing the same number of quality

checks. But on the Codi fillers, throughout the day, we might have to do some finite adjustments to keep it in-spec, whereas with the Ferrum, it just stays."



The Craftmate can filler uses 24 electro pneumatically-controlled filling valves with an inductive flow meter that can determine the fill quantity to the exact amount.Another requirement for the new line was flexibility to run different can sizes. With its three Codi lines, Free Flow is running 250- and 375-mL cans, with manual packoff. The Craftmate accommodates five different can formats: 187, 250, 355 (sleek and regular), and 375 mL. Free Flow is currently running 187-, 250-, and 375-mL sizes, but there has been some interest from wine spritzer companies in the 355-mL can, Perman says.

Can sizes and units of sale for canned wine are dictated by the Alcohol and Tobacco Tax and Trade Bureau's (TTB) Standards of Fill. Under these regulations, the most popular size, 250-mL, cannot be sold as a single unit. It must be sold in an allowable standard of fill, for example, a four-pack that equals 1 L of wine. According to Perman, 187-mL and 375-mL are an allowable standard of fill and are often sold as individual units or can be multipacked. Therefore, where flexibility was especially needed was with the secondary packaging equipment.

For cartoning, Free Flow selected an AC-6H Brewpack 500 continuous-motion, wedge load-style cartoner from Switchback Group. Via the cartoner, cans are

separated into lanes and then smoothly and precisely guided into the waiting erected carton by the wedge conveyor. Currently Free Flow is only using the Switchback to produce four-packs of 250-mL cans, however the machine has the ability to run other carton sizes, such as four-, eight-, and 12-pack cartons for 187-, 355-, and 375-mL cans. “Right now we’re just gathering a lot of information [on what customers want], and we will reconfigure the line when needed to accommodate other carton formats,” says Clauss.

The Ocme tray/case packer handles both four-pack cartons of wine, as well as loose cans in 187- and 375-mL sizes.A bypass lane carries loose 187- or 375-mL cans that will not be packed in cartons to the next piece of equipment on the line: an Ocme Altair X30 wraparound case/tray packer. Here, the loose cans are either tray-packed or packed in cases holding varying quantities, and four-packs conveyed from the cartoner are placed in trays.

“We’ve designed the line for flexibility,” says Perman. “Before we installed the line, we were getting requests for new pack sizes every day. The Switchback is designed to give us flexibility. And it’s important for us as a co-packer to be

able to listen to what our clients need and be able to offer them the majority of those things. Whether we're going to be able to do everything, I don't know, but we're definitely positioned to be the most flexible co-packer, if you will."

"In theory, the number of offerings is infinite—it's more like how many do we have at this moment. Even that depends on how you blend the options, but it's easily 20 plus."

Smooth integration

After designing the line with Altamira, Free Flow turned to American System Controls & Integration Inc. (ASCII), a Modesto, CA-based systems integrator, to design the line's control system, and then assemble, integrate, and commission the line.

As ASCII CEO Eric Houston explains, ASCII engineered the line control system while the machinery was being built, and implemented the system once the equipment was on site. The system uses the EtherNet/IP platform using the OPC protocol to control all of the conveyance and the communications between each machine center. "The communication was pretty straightforward," Houston says. "However, not all machines were EtherNet/IP ready. There were a few machines where we had to actually pull hard data points, so instead of pulling a communication line, we actually pulled wires to individual sensors.

"Two of the machines without EtherNet/IP were Filtec inspection units. So we had to look into those pieces of equipment and determine which points we wanted to pull back. With those machines, we're pulling back the number of good cans and the number of total cans inspected. This way we can get an account of rejects. And that goes into the last part of the project we developed, which is the OEE [Overall Equipment Effectiveness] system.

"The OEE system we're using is FactoryTalk Metrics [from Rockwell Automation]. It has customizable reports for the business unit manager, the production manager, and the maintenance team. So each department can configure a report for their area of interest."

Houston also visited each supplier's manufacturing facility to conduct Factory Acceptance Tests (FATs) on each piece of equipment, beginning with a trip to Krones' plant in Germany in January 2019. In mid-2019, Free Flow was scheduled to begin operation, with commitments to customers for the new 187-mL format on the books. However, the Ocme and Switchback machines had not yet been delivered.

Explains Houston, ASCII assembled the line with a gap where the two machines would be installed and then had operators manually hand-pack cans into cartons, trays, and cases, after which the packaging was automatically shrink-wrapped and palletized. "Free Flow had a massive crew substituting for the two machines that weren't there," Houston says. "After Free Flow met its commitments to its customers, we opened the line back up, took out one section of conveyance, and slid those two pieces of equipment into place. Then we commissioned the line again with those two pieces."

According to Perman, the slow rollout of the line had a silver lining. "We were only running at 25-percent capacity, so it gave us the opportunity to work out any kinks that came up in a reasonable fashion, where we weren't under the gun the whole time."

ASCII, along with the equipment OEMs, is also credited by Perman with helping to train operators on the new equipment. After the wet side of the line was installed in mid-2019, Free Flow decreased the capacity on its smaller lines and moved some of its operators to the new line to work with the OEMs when they were on site. "ASCII was involved with that," he says. "For future needs, they have an operation in Sonoma now, so if we need support, they're here for us."

At the time of *Packaging World*'s visit to the Sonoma plant in September 2019, Perman said Free Flow had anticipated being able to run 83 cans/min by that point. "We're running almost between 250 and 300 cans per minute," he noted. "That's a testament to ASCII and their team getting the equipment, and then our team learning the equipment and being able to handle the change in how things run."

From can to pallet

The complete canning line, with all machinery in place and operational, features the state-of-the-art equipment described earlier, along with some other high-tech systems, integrated with what Free Flow calls a “quality loop,” comprised of a number of inspection/detection systems to ensure the integrity of the can.

At the beginning of the line sits a fully-automated depalletizer, a Codi DPL-1000, which dispenses sleeve-labeled cans to the line. Unique to Free Flow is its informal partnership with CanSource, which offers printing and application of sleeve labels onto beverage cans from an operation co-located with Free Flow. CanSource uses HP Indigo 8000 digital presses to print the film labels, which are applied to brite can stock from Ball.

At the time of *PW*’s visit to Free Flow’s Napa plant in 2017, Perman noted the complexity that applying sleeve labels to cans added to the packaging process. “It requires the packager, the label converter, and the machinery supplier to work in concert to ensure the label fits the machine’s tolerances,” he said. Having a supplier of sleeve-labeled cans next door has eliminated that aggravation.

“We learned a lot about sleeving back then, and we learned it was not in our best interest to provide sleeving services,” say Clauss. “Then we discovered CanSource, which does it really, really well. Their focus on quality and meeting deadlines has always been reliable. So we enjoy working with them, and it made sense for them to put their facility right next door. There is a door in-between our facilities, so there’s no freight, which minimizes costs and the associated damage that comes with transport.

“By no means are our customers required to use their services, but it is just generally convenient and works for a lot of them.”

After they are depalletized, cans travel through a loop ionized air rinser that orients them upside down and sprays the insides with ionized air to remove the charge from the cans as well as dust or debris.Following depalletizing, the cans travel through a loop ionized air rinser, also from Codi. The twist rinse trackwork, or cage, orients the aluminum cans into position upside down so the insides can be sprayed with ionized air to remove the charge from the cans and blow out any dust or debris. The cans are then conveyed to the Krones Craftmate where they are filled, after which they are seamed on the Ferrum can sealer. Following seaming, the Filtec fill-volume X-ray inspection unit checks for over or underfilled cans, with those cans not meeting specifications rejected from the line.

All conveyors up until can filling were provided by Codi. From there on, the conveyors were specified and installed by ASCII, which chose conveyors from A&E Conveyor Systems.

The Filtec inspection unit is at the head of the quality loop, which is followed by a can warmer from Lagrotta Packaging Group that flips the cans upside down so that the full force of the liquid is against the seam, and then it brings the temperature of the can and its contents up past the dewpoint, causing condensation. This condensation is then removed from the can with a can

dryer/blower positioned after the warmer that was supplied by ASCII. Before the next step in the process, cans are turned right-side up.

According to Perman, the inclusion of the can warmer and dryer/blower was driven by requests from Free Flow's customers. "They wanted us to have a way to de-sweat the cans, so there wouldn't be any moisture on the cans going into the final packaging," he says. "A lot of our clients have experience in the can world, so we had an open dialogue about what they wanted and ended up adding the Lagrotta."

Next on the line, and part of the quality loop, is a gamma ray leak detector, also from Filtec, followed by a Filtec AURAtec pressure deflection imaging system that uses a visible laser beam and line scan camera to take a picture of the top of each can and measure it to ensure it's been properly dosed with either CO_2 or nitrogen. "If it's showing that it's too flat and that the can is soft and there is not a good seal, it will kick it off the line," explains Perman.

"We feel very confident about the products that come out once they have gone through all those checks," says Clauss. "We've been excited to see that the loss has been very low—I believe that it's at the sub one-percent range."

After the quality loop is the Switchback continuous-motion cartoner, followed by the Ocme Altair case/tray packer. The trays are then shrink-wrapped using an EDL Packaging shrink wrapper and tunnel for the trays.

Finished trays and cases then pass over a Mettler Toledo Hi-Speed CS3600 Caseweigher in-motion scale that checks the weight of the packaging. The last step is palletizing and stretch wrapping with a TopTier Model L7 all-electric compact conventional palletizer.

Top capacity of 5 million cases/year

At the new Sonoma plant, Free Flow has not only increased its can-filling capacity, but it also installed a custom-designed keg-filling line from Comac that operates at speeds to 150 kegs/hr, with pre-designed modules

that can increase capacity to 300/hr. Free Flow also expanded its temperature-controlled wine storage to accommodate 375,000 gallons of bulk wine.

According to Clauss, Free Flow's canning business is catching up to and will soon surpass its kegging sales. "All the excitement around cans is quickly usurping kegs, namely due to this new high-speed line we have," she says.

Free Flow purchased its third Codi filler when it moved into the new facility in order to keep up with customer demand until the Krones line was installed. Clauss explains that the co-packer intends to retain the three Codi lines so it can accommodate smaller runs. "Our minimums are now 1,000 cans, or 24 cases of wine. And while a lot of our volume is going to move to the high-speed line, a lot of the smaller projects also have custom packaging [secondary packaging is done manually on the Codi lines]. Although we do have a lot of options on the high-speed line, sometimes there is even more the customer asks for that cannot yet be accommodated on that line. So it is very important we have the smaller lines to handle custom projects and smaller volumes."

Between the three Codi lines and the new fully-automated Krones line, Free Flow's total capacity for canned wine is 5 million cases/yr. In 2020, Clauss says the company expects to produce 1.5 million cases.

Millennials Buoy Canned Wine Wave

Mintel's November 2019 Wine, U.S., Report indicates just 16% of U.S. millennials and 3% of Gen X or older consumers who have purchased wine in the past three months purchased wine in cans. This is in contrast to 21% and 11%, respectively, of those who purchased wine in a box and 57% and 58%, respectively, of those who purchased wine in glass bottles.

Millennial consumers not only drink more varied types of wine and on more diverse occasions, but also embrace more diverse packaging materials and sizes. Millennials outpace older consumers in the purchase of boxes and cans and seek out different sizes. Indeed, cans and cartons may be especially appropriate as portable formats or in single-serve containers that are easier for on-the-go consumption or at outdoor parties, picnics, or events.

This bodes well for ongoing innovations in this domain and the potential to engage with younger consumers through diverse formats at different price points. Of note:

· Between January 2015 and January 2020, Mintel recorded 162 introductions of wine in cans globally.

· The high water mark for introductions during that period was in North America in 2018.

· Asia-Pacific peaked in 2018 as well, and Europe peaked in 2019.

· During that period, Crafters Union, a Modesto, Calif., brand was the most prolific in terms of introductions, with a total of seven new introductions during the period.

· The most introductions in one year was by two brands, Original House Wine and Union Wine Company, both with five introductions in 2018.

Source: Mintel's Global new Products Database and most recent U.S. Wine Report

Wine Sales by Package Type in 2019

Wine in glass bottles still dominates, although metal cans have grown the past five years from 40.6 million to 56.8 million units. Wine in metal remains a fraction of a niche for portable, safe, convenient wine, mostly for serving at sporting events, concerts, etc.

Bag-in-box (BIB) wine first appeared in the U.S. in the early 1980s as an alternative to the "jug" wines that were popular for decades through to the 1970s. Some 40 years later, liquid cartons and BIB remain a small slice. Even PET rigid containers have grown to sell almost twice as much and compete with canned wine providing the same convenience/safety features as metal cans for public events. An empty plastic or metal can is much safer than an empty glass bottle in an arena with 30,000 people.

Flexible stand-up pouches, so prevalent in new package design in almost every other category, are a novelty.

Perhaps wine will see strong growth in metal cans in the future, as we watch many craft brew offerings switching from glass to metal cans, providing strong branding/decorating possibilities with shrink labels.

According to Euromonitor, wine sales by package type for retail/off-trade unit, in millions of units, in 2019 were as follows:

- Glass (bottle): 3,142.8
- Rigid plastic (PET): 356.3
- Liquid cartons: 187.7
- Paper-based (BIB): 166.5
- Metal: 56.8
- Flexible stand-up pouches: 5.0

—Jim Chrzan