CASE STUDY

Yalumba
South Australia

Line Optimisation

Australia's oldest family-owned winery upgraded its bottling lines, integrating new technology with existing equipment.

The purpose of the upgrade is to increase production capacity, heighten flexibility and maintain product quality and consistency. The new state-of-the-art bottling lines have helped reduce labour costs and minimise occupational health and safety issues.

Yalumba's Angaston site has five bottling lines with the main production on two glass bottling lines which were last updated in the early eighties. The remaining lines are used for sparkling, cask and other miscellaneous packaging tasks.

Says John Ide, Manager – Winery Operations, at Yalumba: *'While various pieces of equipment were added over time, the layout of the bottling lines were set up more than thirty years ago, and due to obsolescence and reliability issues, we made the decision to pull everything out and start from scratch with the bottling line.'*

'We also needed to upgrade the depalletisers that move the glass from pallets onto the line and address our ageing conveyors.'

'One of our key goals was to separate our material flow in and out of the line and hence forklift movement in the main operational areas', he explains.

The project was taken to tender. Foodmach won it on the strength of its experience in the food and beverage industry, together with its innovative approach and design for bottling lines. The project scope included:

- automation, integration and control systems
- design and supply of all conveying
- manufacture and supply of two new glass depalletisers

Cont...

YALUMBA
FAMILY VIGNERONS c. 1849

Yalumba's heritage-listed Angaston winery was founded in South Australia's famous Barossa Valley in 1849.

Five generations and 168 years later, Yalumba has grown in size and stature, embodying all that has made the Australian wine success story the envy of winemakers the world over. Every bottle is born from a steadfast commitment to careful crafting and a belief in nurturing the land and the environment.

FOODMACH
Automation | Robotics | Integration | Turnkey Projects

THE CHALLENGE

OLD MEETS NEW

Integrate legacy equipment into a new line control system that combines old and new equipment:

Line 1 contained predominantly existing equipment that was relocated with new controls, a new conveyor and new palletisers.

Line 2 was a completely new line with a new de-palletiser, filler and packer. The existing labeller and palletiser were retained.

LINE CONTROL

Careful consideration of the control interfacing between each machine on the line teamed with appropriate conveyor design and buffering was essential to delivering the highest possible line efficiencies.

FLEXIBILITY

A truly flexible depalletising solution allows for fast changeovers from one bottle type or pallet and dunnage format to another. It should be able to handle local and imported glass on a variety of pallets and offer operator-free operation, robotic dunnage handling, automatic destrapping and ideally, gentle glass handling. Poorly-designed conveying systems have a significant impact on operating speeds and packaging quality. A customised conveyor solution, able to handle reverse taper bottles, was required.

'We've increased capacity on line two by 50%.'

Manager – Winery Operations, Yalumba

THE SOLUTION

Flexibility and speed

'Prior to the upgrade, both bottling lines had no integrated automation so basically everything including the conveyors and packers, ran as individual pieces of equipment. We wanted the new lines to be completed integrated', Ide says.

By controlling both lines with Allen-Bradley® ControlLogix®, this high level of integrated control and automation could be achieved through Ethernet communications.

The Line 1 control system feeds back information about the line's speed and, based on this information, the equipment is able to speed up or slow down.

The capacity of ControlLogix® for this backward integration to the legacy PLCs added significant value to the solution.

The second line was controlled slightly differently in that the filler speed was established and the line itself speeds up or slows down to match the conveying. That is, the filler stays fixed at a determined speed and the conveying ramps up or down to suit. Line 1 conveying is at a fixed speed and the machines ramp up or down to suit.

Ide explains, *'This suits our needs because Line 1 is a very flexible line where we can bottle varying amounts and liquids including sparkling, cork, screwcap and crown-sealed bottles, but Line 2 is our high volume line and needs to run at speed. Line 1 can fill between 6000-9000 bottles per hour while Line 2 is set to fill 12,000 bottles per hour of 750ml screw cap bottles.'*

Fuss-free integration

The new de-palletiser, manufactured locally by Foodmach, uses servo drives to run the lift motor and sweep where it moves the bottles in a single layer.

'The de-palletising is a fully automated process which has helped reduce the manual labour at the plant. At the end of the second line, we have a Foodmach Robomatrix® that arranges pallet formation automatically. The control for both lines allows the system to monitor the intake and output of the entire line, speeding it up or slowing it down depending on whether there are any issues, hold ups or backlogs', Ide explains.

Producing quality wines

To maintain the flavour and freshness of each bottle of Yalumba wine, dissolved oxygen meters with alarms have been integrated into the bottling line to avoid oxidation. Line one contains a carbon dioxide (CO_2) meter to measure dissolved CO_2 in sparkling wine.

The quality systems are integrated with the SCADA system so data is collected directly with FactoryTalk Transaction Manager. This provides information on the product being bottled through the filtration skid and stores all relevant information about the batch in FactoryTalk Historian for future reference and quality control, thus reducing the risk associated with manual reporting.

The wine bottling and labelling are carried out in an insulated room that is controlled by an air conditioning system. CompactLogix® controls the system so that parameters such as relative humidity, dewpoint and room temperature are monitored on the SCADA system.

Adapted from original article in PKN News Sept/Oct 2017.

The Results

- High-level integrated control and automation – bottling production on Line 2 increased by 50%
- New bottling lines have reduced power consumption by 10%
- Mobile, site-wide accurate monitoring & reporting
- Improved safety and reduced labour

'We've reduced labour costs and improved safety.'

Manager – Winery Operations, Yalumba

WHAT CAN WE DO FOR YOU?

PALLETISING

Our Award-winning Range

Robomatrix® High Speed

Compact Robomatrix®

Pick & Place

Robot Pick & Place Depalletiser

Mechanical High Level Depalletiser

Mechanical Low Level Depalletiser

CONVEYING

The latest in conveyor technologies, custom-built to handle any type of product or packaging:

Container Conveying (PET bottles, glass and cans)

Case & Tray Conveying (cartons, multi-packs, shrink-packs, open trays)

Pallet Conveying

ENGINEERING & PROJECTS

Engineering Diagnostics & Design

System Design 3D Simulation

Automation & Control Systems

Equipment Manufacture

Installation & Commissioning (mechanical, electrical & software)

Total Project Management

Line Efficiency Audits

PACKAGING TECHNOLOGIES

Inspection Systems

Collaborative Robots

Conventional Robots

Fillers

Labelling and Coding

Case Packers

Pallet Wrappers

SAFETY

Risk Assessments

Safety Upgrades

Compliance

Reporting

CUSTOMER SUPPORT

Maintenance Support (major service, system audit, robotics)

Operator & Maintenance Training

Remote Phone Support

Spare Parts Service

24/7 Support Programs (mechanical, electrical & software)

LINE INTEGRATION

Systems Integration

Line Control

Line MES

OMAC PackML

RELOCATION SERVICES

Factory

Equipment

End to End Service

CONTACT US

Tel: 1800 FOODMACH

Melbourne
15/19 Enterprise Drv, Bundoora VIC 3083
melbourne@foodmach.com.au

Sydney
sydney@foodmach.com.au

Brisbane
brisbane@foodmach.com.au

Adelaide
adelaide@foodmach.com.au

Echuca
1 Darling St, Echuca VIC 3564
echuca@foodmach.com.au

www.foodmach.com.au

At Foodmach, our challenge is to put you behind the wheel of the fastest, most powerful production line solution possible.

One that gives you real-time information and gets you to the finish line first. We guarantee you speed – speed of service and delivery because we're local manufacturers and do everything in-house, and higher operational speeds through better technology tailored to your exact requirements.

And we guarantee control – better project management control through a single point of contact and better machine control through the industry's most user-focused operation and software solutions. We integrate all the equipment on your line and give you more live data than ever before.

Control over operational safety too, because we're the safety experts and we make the safest machines in the business. We'll even relocate your entire factory and get you safety compliant.

Foodmach is **the fastest way to get control of your packaging line.**

speed + control | ability