CASE STUDY

Australian Vintage Ltd

Industry 4.0

AVL aimed to accelerate production and new product innovation at its existing packaging facility, bottling both sparkling and still wine on the same line.

In 2017, Australian Vintage Limited announced its proposed $10M efficiency improvements to its Merbein packaging facility.

Located just north of Mildura in Victoria, the site opened in 1914 and had not seen a significant upgrade since 2006.

AVL needed to increase production at Merbein in order to meet the growing local and global demand for its brands.

'Line 6' would be required to support AVL's drive for new product development and speed to market. It needed to be completely flexible and operate at the highest achievable rates of production. The company spent two years meticulously searching for the best equipment available.

Finding an integrator capable of maximising the line's capability and providing a full set of controls was an easier task. **Foodmach's experience in both integration and glass handling, plus local service and support made for an obvious partnership.**

The Challenge

The new bottling line needed to produce all packaging formats and wine styles within the extensive AVL portfolio—the broadest scope possible—with speed and agility.

A range of equipment was sourced from overseas manufacturers. After an extensive global tender process, Foodmach was selected to provide the Depalletiser, Conveying, Integrated Control System and Robomatrix Palletiser.

Foodmach's role at Merbein included:

- packaging line integration
- design and manufacture of depalletising, palletising and conveying
- development of a line control system to link all Foodmach and OEM equipment.

AUSTRALIAN VINTAGE LTD

Australian Vintage Limited is a leading Australian wine company.

Championing a fully-integrated wine business model, the breadth of AVL's capabilities extends to vineyards, boutique and bulk wine production, packaging, marketing and distribution.

Its dynamic and award-winning portfolio of Australian wine brands are globally recognised and enjoyed.

FOODMACH

Automation | Robotics | Integration | Turnkey Projects

THE SOLUTION

A fully integrated line and conveying system with line control that puts management in the driver's seat.

Line 6 at Merbein is one of the most technologically advanced packaging facilities in the world, significantly increasing AVL's production capabilities.

It has increased the processing and packaging of still wine from the previous rate of 9000 bottles per hour to 11,000, with the additional capacity for 7000–9000 bottles per hour of sparkling wine, making it one of the fastest wine bottling lines in Australia.

Foodmach designed a conveying and line control system to integrate:

- Filtration (ACRAM)
- Carbonation (Water Systems)
- Bottle rinsing, filling, capping/crowning (MBF)
- Fill level control (FT System)
- Wire application (muselet)
- Hood application for sparkling (Robino & Galandrino)
- Labelling (MAKRO)
- End of line packing (LOgIK & BortolinKemo)
- Depalletiser (Foodmach)
- Palletiser (Foodmach & Emmeti)

'Our new Merbein packaging facility is a landmark moment for Australian Vintage and represents a step-change in our capabilities.' Neil McGuigan, AVL CEO.


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Foodmach was awarded the role of integration supplier for the project on the basis of:

- quick response times and flexibility
- specialised integration skills
- local support and presence
- FMCG material movement experience
- reputation for precise glass handling
- factory relocation/reintegration experience
- end-to-end in-house manufacturing, mechanical, engineering, electrical, programming and safety skills.

The fully integrated line and conveying system is critical to achieving and monitoring the high line OEE expected by Australian Vintage Limited for this project.

The Line Control System is designed to ensure seamless integration with all equipment on the line, and to allow collection of data to monitor machine and line performance.

The line is capable of:

- Linking together all the individual components to a central point using OMAC and PackML as the common interface.
- The OMAC PackML™ state model, modes and naming conventions are used to describe machine states for standardised operation, monitoring, analysis and business management information access via OPC, SQL, XML or other standardised data structures and interfaces.
- Communication with a higher-level MES or ERP system and receive process orders, scheduling and pathing information.
- Efficient setup and changeover by permitting changeover and reconfiguration via recipe management.
- Displaying events, errors, warnings and current production data.
- Displaying current OEE (Overall Equipment Effectiveness) data of the line and of the individual machines.

DETAILS

'We are continuing to lift the bar on the quality of Australian wine and now we have a bottling line that mirrors this.'

Neil McGuigan, CEO

('AVL invests $11m in new packaging facility' National Liquor News)

OMAC/PackML provides all the information for the business management.

Packaging Machine Language v3.0 (PackML) has been developed by the Organization for Machine Automation and Control (OMAC) in order to provide a common "look and feel" across a plant floor and to enable a common interface between machinery across a plant. This allows an ERP, MES, or even other machines on a line to look at any piece of equipment and retrieve status and even control the equipment, regardless of type/make/vendor.

As well as control, basic performance information may be retrieved from the common PackML interface, such as time executing and producing, or time executing and not producing (suspended). This can be applied to both line control and OEE performance information.

OMAC/PackML

BENEFITS

Flexibility and nimbleness to drive AVL's innovation and speed to market agenda.

Accuracy

AVL had selected a range of high-end equipment from a variety of original equipment manufacturers. In order to achieve the highest possible line efficiencies, careful consideration of the control interfacing between each machine on the line teamed with appropriate conveyor design and buffering was essential.

Speed

A bottling line is only as fast as its conveyors. Conveying systems have a significant impact on operating speeds and packaging quality. Foodmach designed a customised conveyor solution for AVL, able to handle reverse taper bottles.

Automation

To make machine operation easier, the current state is made available on each HMI on AVL's Line 6 along with performance information. This makes tracking time faulted, infeed starved, outfeed buildback, machine paused etc. easily available to external devices and systems.

The state manager may also be remotely controlled by external equipment or process manager. For example: a case packer could stop downstream units if it produces a bad batch.

Gentler Glass Handling

Foodmach conveying, depalletising and palletising systems are designed to handle glass carefully and accurately. As a result, Line 6 is noticeably quiet.

Flexibility

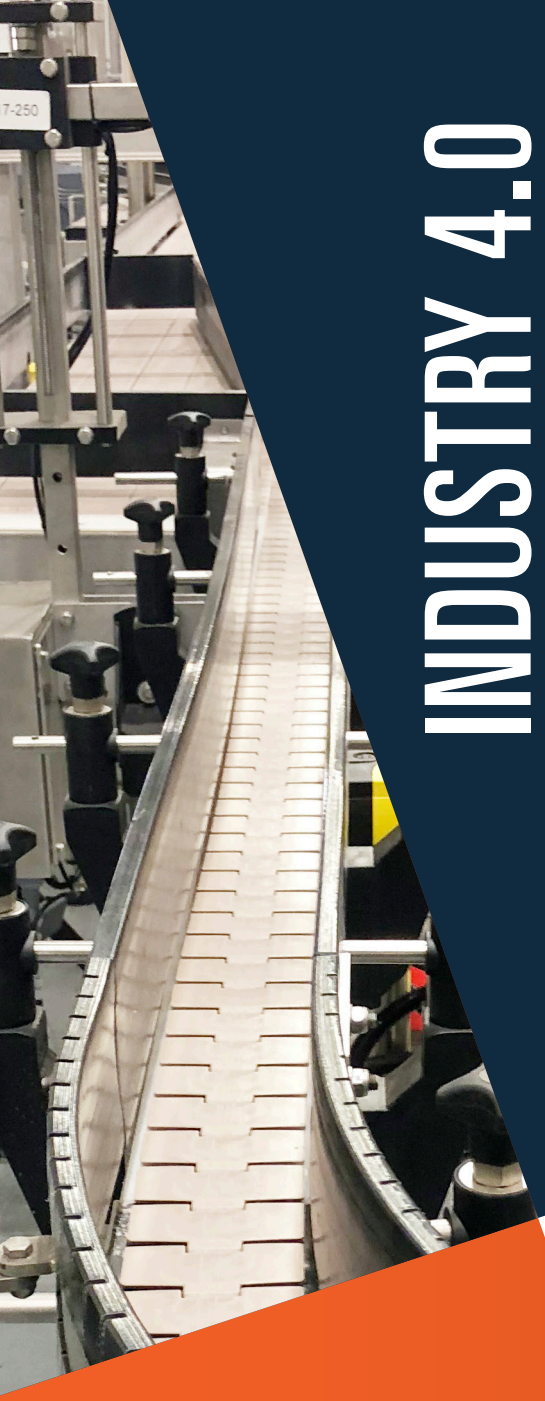
Operators can select a recipe or an SKU and automatically reconfigure the line to run that recipe or SKU. Changes can be scheduled ahead of time.

The Robomatrix Palletiser comes with a software (Robowizard®) that allows operators to create their own case size and format in real time from the HMI.

The Foodmach Depalletiser is able to handle a wide variety of local and imported glass on a range of pallet sizes and offers fast changeovers with automatic destrapping.

Safety

The entire operation and all OEM equipment meets Australian and International safety standards.



INDUSTRY 4.0

Foodmach specialises in systems integration, and has nurtured deep in-house expertise in information-driven manufacturing, be it IoT, IIoT, M2M or Industry 4.0, using industry standards such as OMAC PackML.

This enables the delivery of turnkey installations to uniformly high standards with optimal efficiency. Our projects are optimised for Industry 4.0 connectivity. We provide the horizontal i4.0 integration and the information for the vertical integration with higher level MES and ERP systems.

Chris Yule, National Sales Engineer, Foodmach: *'The project manager for AVL had a strong vision of what they wanted to achieve and it shows in the results.'*

'Foodmach have the skill and efficiency needed to pull off a challenge of this size. Excellent work with great results.'

Ron Van Buuren, Project Manager

KEY PERFORMANCE INDICATORS

Chris Yule, Foodmach: *'During the sales process, the operations manager joked that he'd like to be able to check on the line from an iPad while sitting on a house boat.'*

'Well, we delivered a solution that can do just that: line efficiencies and monitoring of the entire production line metrics can be monitored on an iPad from anywhere.'

FUTURE PROOFING

'AVL Merbein's Line 6 has the same capability as some of our other Industry 4.0 sites such as Dulux Merrifield—it just hasn't been fully utilised yet. This is an old site with a new packing line, future proofed for full Industry 4.0 capability.' Chris Yule, Foodmach.

'... this wonderful line will set our business up for at least the next 15 years.' AVL CEO, Neil McGuigan

('What a Corker' Mildura Weekly)

'The ability of the equipment to be used in various operational modes will dramatically shorten the turnaround of new product development.' AVL COO, Cameron Ferguson

('AVL opens $10M bottling line' PKN Packaging News)

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