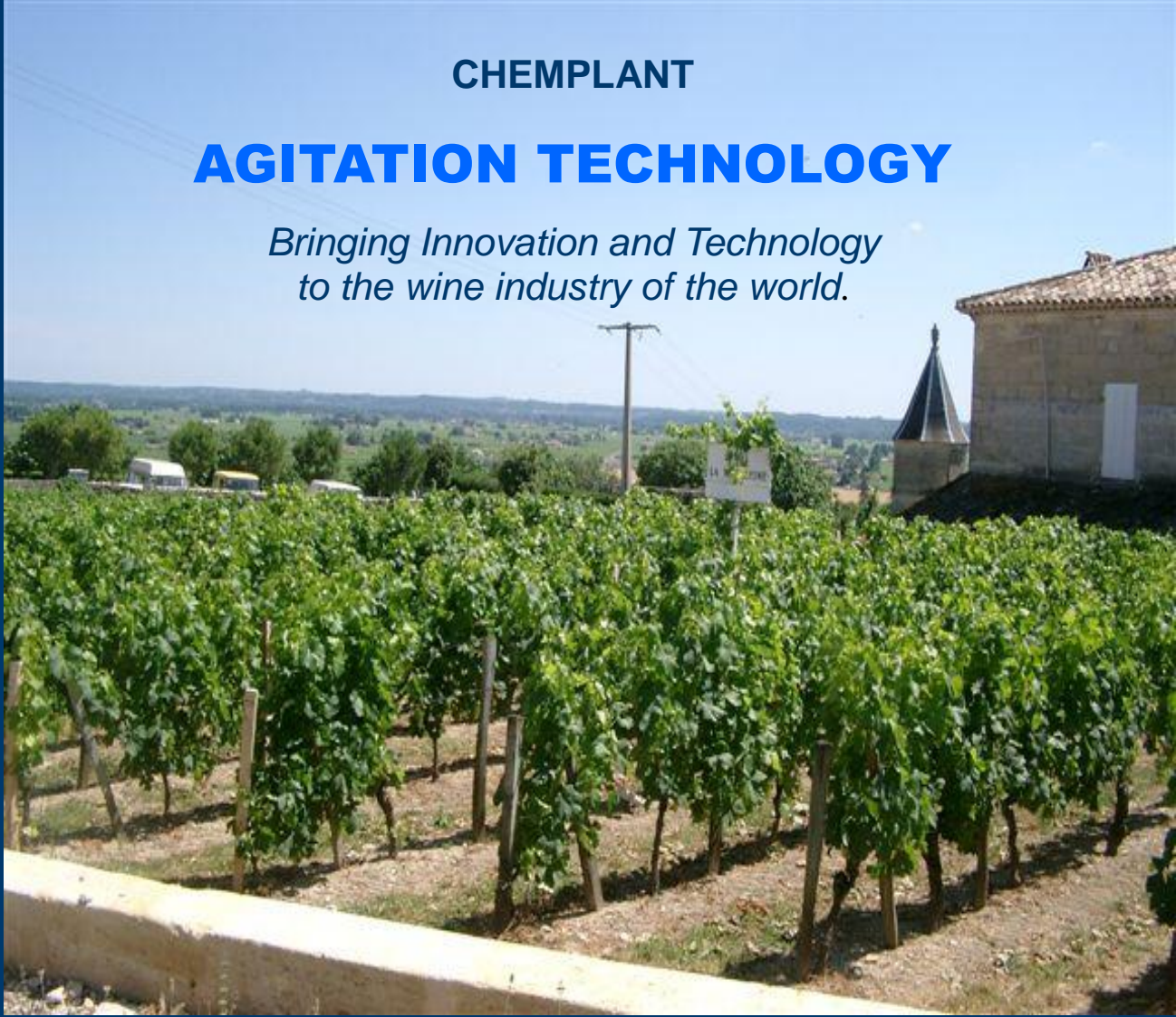


CHEMPLANT

# AGITATION TECHNOLOGY

*Bringing Innovation and Technology  
to the wine industry of the world.*



Chemical Plant & Engineering has operated as one of Australia's leading process equipment design and supply companies for over 50 years. During this period, CPE has developed an extensive product range, combining our proprietary designs and international licensing arrangements, to achieve world leading technology.

The concept of “Sustainability” has become a common business philosophy of the wine industry as a whole.

The Australian wine industry is characterised by its pursuit of **Technical Excellence** and to bring **Innovation** and **Sustainability** to its business operations.

# “SUSTAINABILITY”

**“Meeting the needs of the present without compromising the ability of future generations to meet their own needs”**



# “TECHNICAL EXCELLENCE”

Chemical Plant & Engineering was approached in the late 1990's by leading Australian wine companies to assist in bringing technologically advanced engineering solutions to their operations.

Issues such as wine quality, plant efficiencies and process and economic sustainability were common variables that the wineries were striving to improve.

Since that time, Chemical Plant & Engineering has become intricately involved in upgrading existing wineries to world-leading status within particular applications.

Now in 2009, Chemical Plant & Engineering has become the leading supplier of agitation equipment to the Australian wine market with over 90% of the market. Leading clients included;

- \* McGuigan Simeon Wines
- \* BRL Hardy Wine Company
- \* Wingara Wine Group
- \* Orlando Wyndham

Chemical Plant and Engineering  
has  
**“PIONEERED”**  
the introduction of advanced  
agitation techniques to the  
wine industry.





The practice of cooling wine to  $-4^{\circ}\text{C}$  and holding it in jacketed tanks for extended periods of time is a simple but relatively inefficient way to achieve cold stability.

Recent developments have indicated that wine quality can be enhanced by gentle agitation of the storage tanks, thus creating better heat transfer and consequently, a quicker and more controlled cold stabilization process.



Heat exchange has found to be greatly improved if the tank contents are mechanically agitated. Adding mechanical agitation provides greater homogeneity, improved heat exchange and refrigeration efficiency.

Agitation has been proven to be of benefit during a number of wine making processes. These include,

- \* Wine storage
- \* Cold Stabilisation
- \* Fermentation

Agitation will counteract the temperature stratification that results during product storage, as the cooler denser wine will descend to the bottom of the tank.

This improvement ensures the integrity of the final product is maintained and a higher quality of wine is eventually produced.

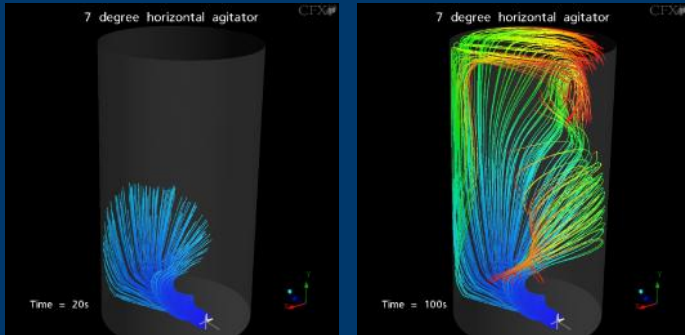


# ENHANCED WINE MAKING TECHNOLOGY

Mechanical agitation within the wine making process assists in achieving higher quality wine.

Benefits of efficient agitation include:

- Optimising the refrigeration process during cold stabilisation through better circulation
- Enhanced additive mixing due to increased mixing efficiency
- Uniform product characteristics due to improved mixing.



**CFD visualization of flow pattern within a wine tank using side entry agitation**



The introduction of engineered agitation equipment into the Australian wine industry was initially gradual but has now become common practice throughout most existing and new wineries.

This technology has proven to enhance wine quality and improve wine operations.

# IMPROVED PROCESS EFFICIENCIES

A photo of Chemplant agitators installed at an Australian winery. Unique design features allow for easy installation and maintenance.

Are you looking to improve your wine making process?

Mechanical agitation of a wine vessel, whether during fermentation, cold stabilization or storage assists in providing improved wine quality in the most efficient manner.

Benefits of mechanical agitation include:-

- I. Improved circulation resulting in more even temperature profiles throughout the vessel ensuring a more consistent product quality. Temperature stratification is minimised.
- II. The rate of cooling provided during fermentation/cold stabilization is increased and therefore provides faster process outcomes.
- III. Enhanced blend rates and blend quality
- IV. Enhanced fermentation performance via controlled agitation.
- V. Elimination of ice formation on internal tank surfaces during cold stabilization ensuring heat transfer performance is maintained.
- VI. Allows a uniform feed rate of wine to the centrifuge system.

Utilise world leading agitation technology to provide improved process outcomes in your wine making facility!

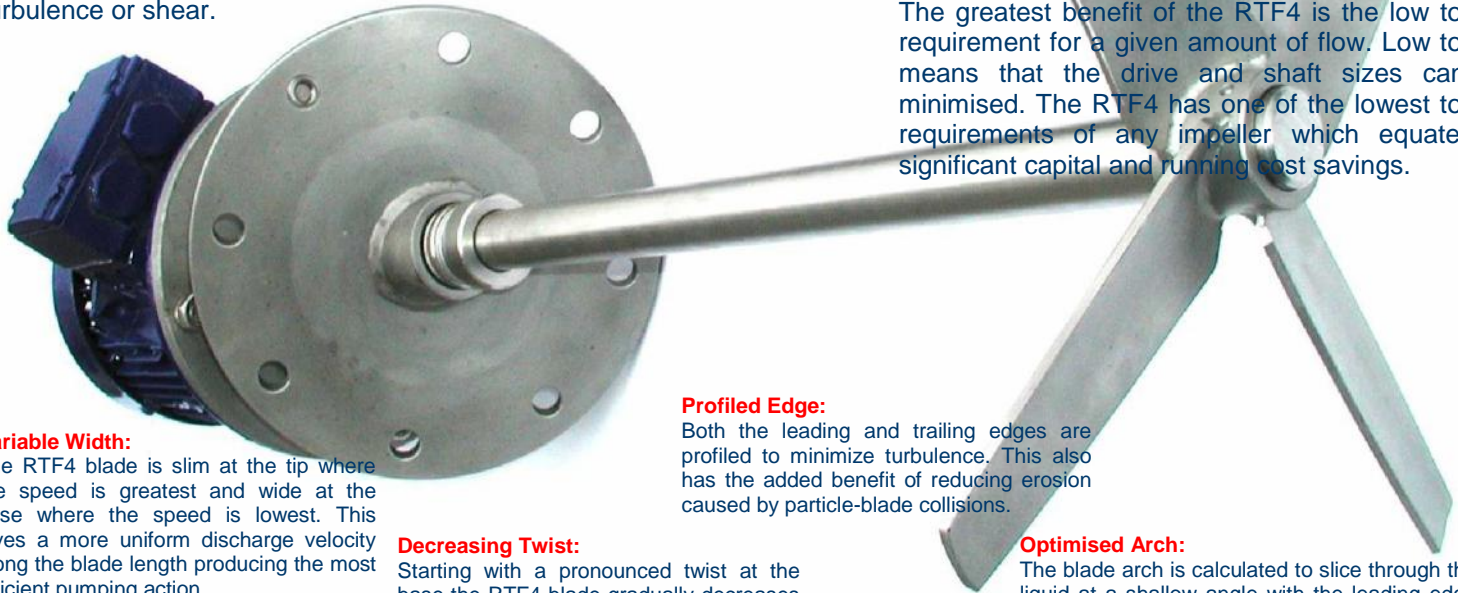


# WHY IT WORKS

The Chemplant RTF4 hydrofoil is '**WORLD LEADING**' technology.

The RTF4 hydrofoil is the world's leading axial flow impeller offering the maximum pumping capacity per unit of horsepower input. This means less power, simpler support structures and reduced spare parts costs.

The RTF4 hydrofoil impeller was hydro-dynamically developed to reduce power consumption by maximizing flow and minimizing turbulence or shear.



All blending applications require a controlled uniform flow pattern. This ensures that the whole tank contents are kept in motion and that areas are not left unmixed. The RTF4 creates an axial flow pattern with a very even flow velocity ensuring the tank contents are quickly mixed.

The greatest benefit of the RTF4 is the low torque requirement for a given amount of flow. Low torque means that the drive and shaft sizes can be minimised. The RTF4 has one of the lowest torque requirements of any impeller which equates to significant capital and running cost savings.

## **Variable Width:**

The RTF4 blade is slim at the tip where the speed is greatest and wide at the base where the speed is lowest. This gives a more uniform discharge velocity along the blade length producing the most efficient pumping action.

## **Profiled Edge:**

Both the leading and trailing edges are profiled to minimize turbulence. This also has the added benefit of reducing erosion caused by particle-blade collisions.

## **Decreasing Twist:**

Starting with a pronounced twist at the base the RTF4 blade gradually decreases its angle of attack towards the tip. This creates an even velocity profile whilst helping to keep turbulence behind the impeller blades to an absolute minimum.

## **Optimised Arch:**

The blade arch is calculated to slice through the liquid at a shallow angle with the leading edge while the sharply-cambered trailing edge directs powerful currents downwards.





# “Sharing Technology and Expertise”

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