



Mixers, Blenders and Agitators in the Wine Industry

Western Engineering manufactures a range of mechanical mixers, blenders and agitators for the wine industry, typical applications include;

- For the rehydration of yeast in preparation for fermenting.
- For the addition of yeast nutrients during fermentation.
- For accelerating the flavour take up from oak chips and similar.
- For assisting in maintaining uniform small CO₂ bubble size when fermenting.
- For the mixing and subsequent addition of fining agents like bentonite, gelatine and others for clarifying and stabilising wine or juice.
- For the addition of sulphur dioxide in different forms to protect the juice or wine against oxidation.
- To enhance cold stabilisation reducing the duration and energy costs, some wineries have reported cold stabilisation achieved 3 times faster than without agitation.
- For the mixing of different wines and/or juices to achieve a homogenous blend.
- To eliminate temperature stratification within wine silos.
- To increase the turbidity to promote more effective filtration and centrifugation.
- For the mixing of yeast lees (battonage) after fermentation to increase contact of yeast lees in tanks.

Wineries usually use pumps to transfer juice or wine between different tanks, they often use this pumping action as a mixing process. This can lead to negative consequences. It can create excessive aeration with resulting risk of oxidation. When pumping from one tank to another the design of the pumping system is focussed on product transfer not mixing. When pumping a fluid into a tank the flow generated often produces a “shadow” in areas within the tank where is little, or no flow, which results in longer mixing times with often poor results. Pumps use more electricity and labour than mixers and take a longer period to produce a result. In addition, pumps can create trip hazards with hoses on the winery floor.

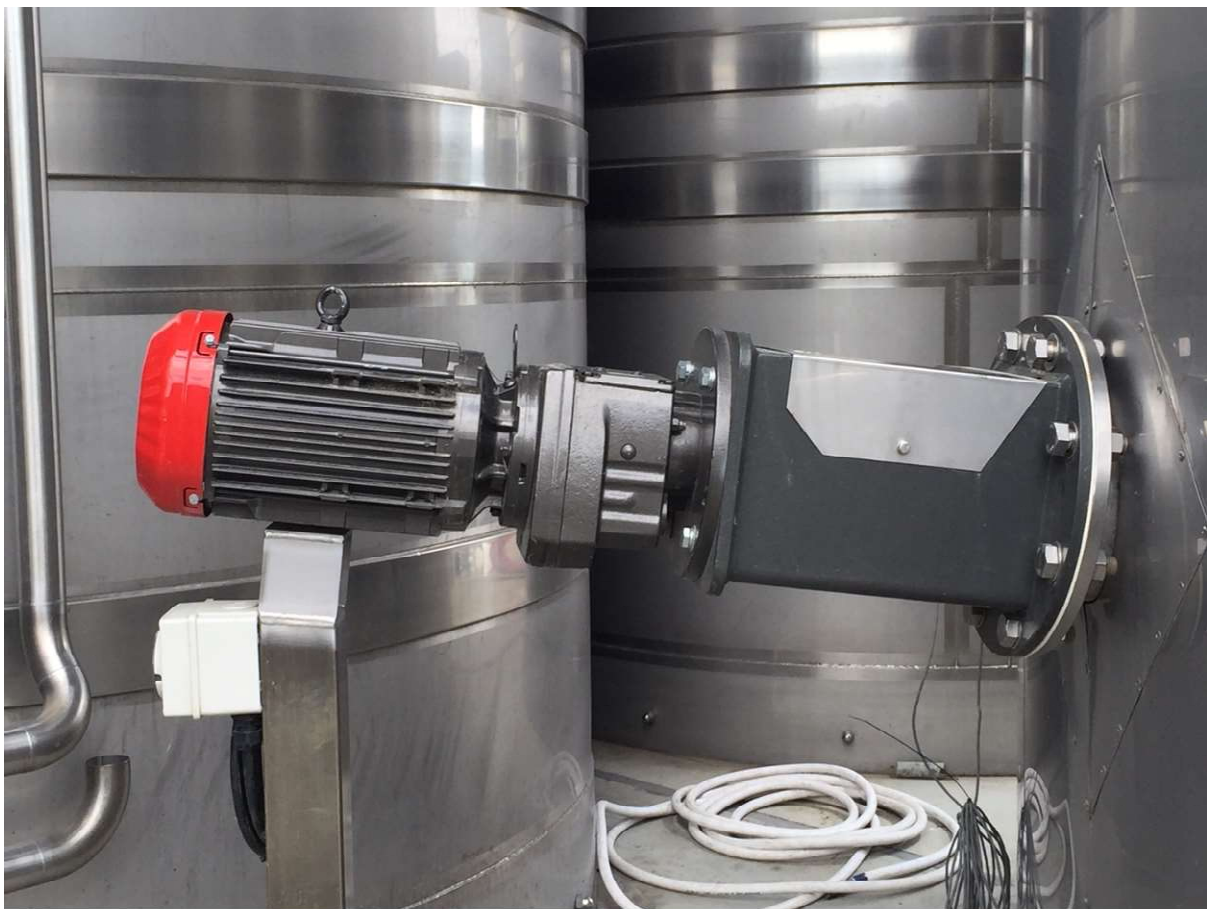
Mixers consist of an electric motor, often coupled to a gearbox, and an output shaft with one or more impellers, in the case of side entry agitators a mechanical seal is utilised to seal the tank and the point of entry. The geared motor system drives the shaft and impeller which in turn causes the movement of the liquid within the tank. The volume of the tank, the contents and the purpose of the mixer will determine the power of the drive, the speed, the size and the type of impeller.

In storage, cold stabilisation and fermentation applications the design and speed of the impeller is important to ensure that the wine or juice is circulated gently within the tank without creating undesirable turbulence. In solids suspension applications, such as making bentonite slurries, creating a superficial velocity within the tank is necessary to suspend the solids and keep them in suspension

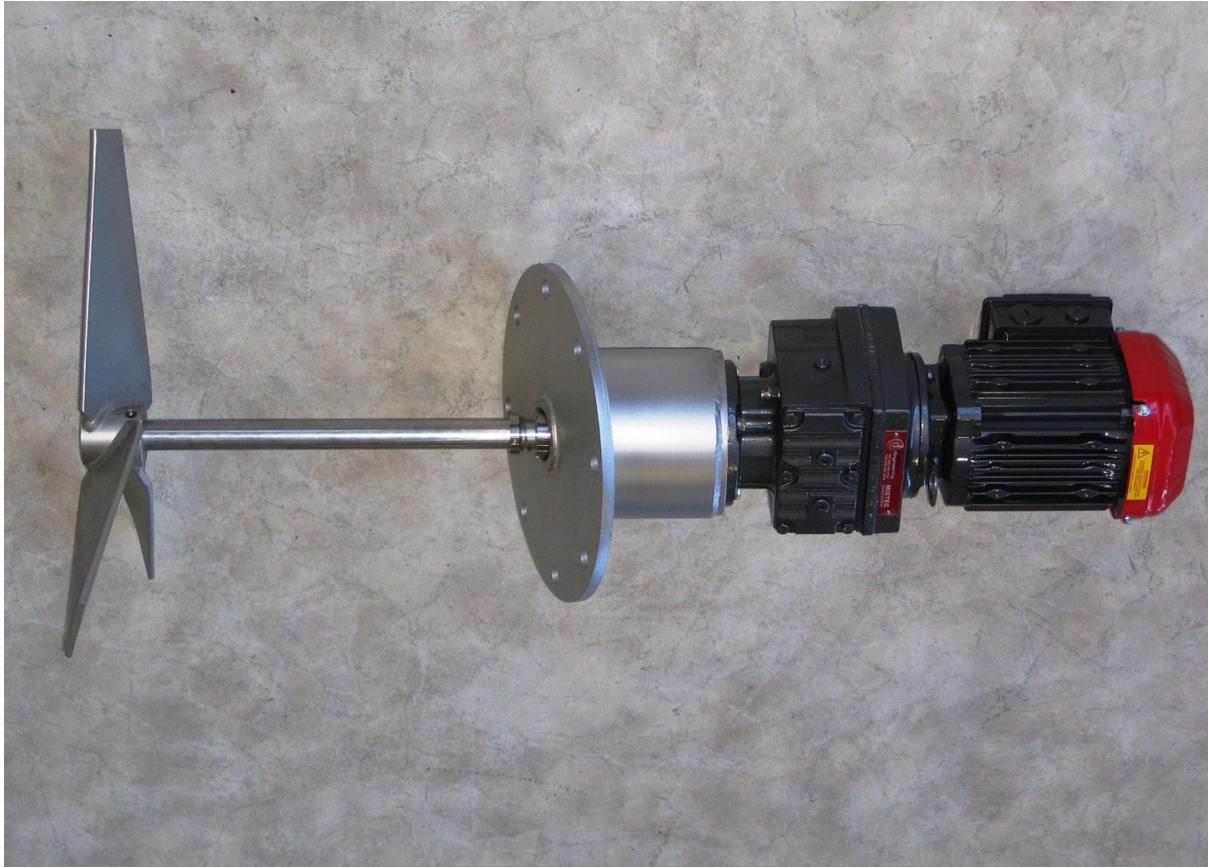
Mixers can be permanently installed on a tank or can be portable for use on multiple similar size tanks. Permanently installed mixers are usually used for large tanks or specific applications. The tank volume, product and process will determine the specific mixer installed on the tank. To ensure the most effective mixing in the shortest possible time the position and angle of installing the mixer is important.

Portable mixers are useful where infrequent mixing in a variety of similar size tanks, tubs, drums and barrels is required. They are usually light weight and can be temporarily clamped to containers or mounted on frames which straddle tanks, tubs and even IBC vessels. In the case of IBC's and closed top barrels, blades which collapse to fit through the relatively small entry bungs are used to achieve the correct blade diameter for the given vessel size.

By using a mixer correctly designed for the application and the tank it is to be used in the quality of the mixing/agitation/blending and subsequent downstream processes will be improved and can lead to higher product quality and savings on energy, time and manual labour.



Large Side Entry Agitator in 340m³ Wine Silo, model M5000 which has the facility to service the drive and/or the mechanical seal without emptying the contents of the silo.



Typical side entry mixer for wine silos, Model 5040, sizes available for silos from 5m³ to 320m³.



Mobile tank and mixer for making up additives in winery, complete with transfer pump.