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Process Peristaltic Hose Pumps Highly Versatile Pumps For The Modern Winery

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Key Words

- Peristaltic Pumps
- Hose Pumps
- Maceration
- Pump-overs
- Fermentation
- Bentonite

Wine production consists of a wide variety of operations involving the movement of liquid and semi-solid materials. Examples are movement of must from de-stemmer to press; moving juice from press sump to the fermenter; pump-overs during fermentation; transferring from tank to tank for settling and blending. There's also moving wine from holding tanks to barrels, and from barrels to blending tanks. The list goes on and on.

Many of these operations come with their own unique challenges for the wine producer. Grape pulp, skins and seeds must be pumped without macerating either the pulp or skins, and without breaking seeds that can create off-flavors. Press sumps must be emptied quickly and gently to minimize emulsion of the solids in the free-run. Pump-overs during fermentation generally require total control of oxygen exposure, and filling and emptying barrels must be performed without foaming, mixing or contamination. Thermo Scientific Fluid Handling can provide solutions for all of these needs.

Flexible rotary lobe pumps and impeller pumps

Although gravity is the best way to move delicate wines, not all wineries are blessed with the luxury of a vertical design and, hence, pumps are a necessity. In U.S. wineries, rotary lobe pumps are widely used, however they are not well-suited for handling abrasive materials such as bentonite and diatomaceous earth or the hard solids often present in lees, must, and pumice. With rotary lobe pumps, it's often difficult to pump consistent, repeatable flow rates, so they are typically not the best choice for important metering applications such as filling barrels and pumping ingredients that must be critically-measured. That's because



Process peristaltic hose pumps from Thermo Scientific Fluid Handling provide precise, highly reliable and long-term operation in winery fluid handling applications.

rotary lobe pumps rely on consistently close tolerances between their lobes and casing and fluid slip between them can cause inaccuracies in metering applications. Rotary lobe pumps have up to four mechanical seals that can leak product, creating downtime and maintenance issues. Many lobe pumps are equipped with expensive seal flush systems, which can create EPA hazards.

Flexible impeller pumps are also widely used in U.S. wineries. They combine the self-priming features of positive displacement pumps with a

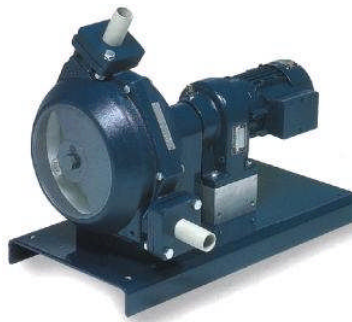
certain level of materials handling flexibility. However, these pumps can be damaged if run dry, they tend to clog more readily than most positive displacement pumps and their impellers can be easily damaged.

The solution is a pumping system that provides the gentle pumping action, versatility and reliability required to best serve the multiple applications of a modern winery. Here, process peristaltic hose pumps from Thermo Scientific Fluid Handling fit the need.

Low shear, low maintenance

Thermo Scientific peristaltic tubing and hose pumps provide very low shear, thereby creating a very gentle pumping action without breaking seeds or excessive maceration of skins during operations that can create off-flavors. In addition, there are no seals, lobes, or other moving parts in the stream that can bring about chronic maintenance issues and unscheduled downtime.

Peristaltic pumps operate on a positive displacement principle that uses rotating rollers to occlude (squeeze) fluid through elastomeric hosing. The



The gentle delivery from peristaltic pumps minimizes grape skin maceration or seed breakage that can create off-flavors.

material being pumped never touches the pump – there are no wetted parts other than inside the hosing – the pump has no seals, no internal rotors and no other mechanical parts in the product stream. The material being pumped remains within the hose – the pump’s moving parts are impervious to abrasive materials such as bentonite and pumice that can erode rotary lobe and flexible impeller pumps. Hose pumps eliminate excessive downtimes for cleaning, stripping and repairing the pump. Thermo Scientific peristaltic pumps never need to be disassembled to be cleaned – just periodically changing out the pump hosing, which typically takes only a few minutes.

Peristaltic pumps are self-priming, and they can run dry for extended periods without damage. They also provide incredible suction lift – self-prime up to 29 ft. water column – making them ideal for emptying barrels or adding yeast product from storage vessels located below filter units.

Flow rate stability, accuracy

Thermo Scientific Ponndorf peristaltic pumps provide superior flow rate stability and metering accuracy, offering



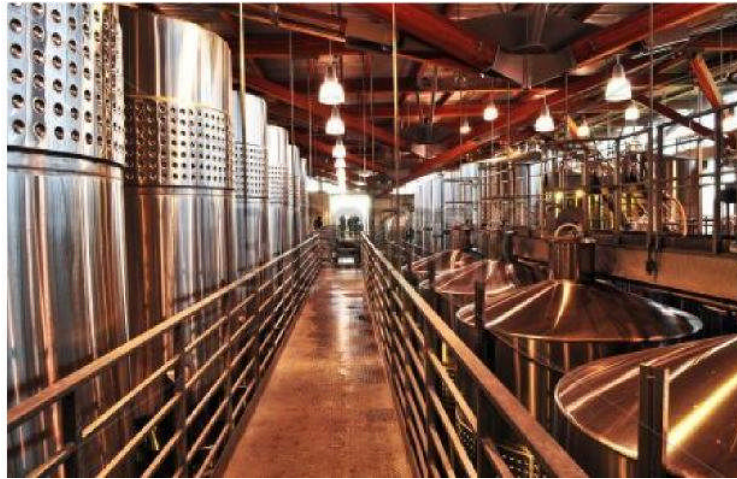
the linearity and repeatability required for optimal flow transfer and dispense.

The proven peristaltic design provides for accurate, reliable, and repeatable

performance without clogging, and without check valves that can jam, cause siphoning, downtime, and performance and/or product quality issues.

Benefits of peristaltic pumps in winery fluid handling

- Does not damage grape, skins, or seeds during pumping.
- Product comes into contact with only the hosing, which can be replaced in just a few minutes.



Many pumping operations come with their own unique challenges for the wine producer. What's needed is a pumping system that provides the gentle pumping action, versatility and reliability required to best serve the multiple applications of a modern winery. Thermo Scientific peristaltic hose pumps fit the need.

- Adjustable flow resolution, bidirectional flow and self-priming capabilities, hose pumps provide aeration-free, seamless flow.
- Can operate dry without damage.
- They handle varying fluid viscosity without affecting pumping capacity.
- Requires very little maintenance to keep in peak operating condition.
- Provides total control of exposure to oxygen while pumping over during fermentation.
- A wide range of superior hosing material is available for most any application.
- The gentle pumping action of hose pumps does not damage solids during pump-overs.
- Superior performance in viscous and abrasive handling applications.
- High reliability minimizes process interruptions and downtime.
- High suction provides quick ramp up from no-flow condition to the desired set point.

Full range of capacities, enclosures and control capabilities

The broad range of Thermo Scientific pumps offers flowrates to 265 GPM and pressure capabilities to 220 psig. The pumps come in a variety of configurations and enclosures and accept a range of inputs/outputs for automated control. Single and dual head designs are available and various tubing materials are available to meet the specific needs of the customer. Options include control input/output capability, variable speed drives and leak detectors.

With a well-balanced range of capacities and flexibility, versatility, and very gentle pumping action, Thermo Scientific peristaltic pumps provide precise, highly reliable and long-term operation in winery fluid handling applications.



Process peristaltic pumps come in a variety of flowrates, configurations and enclosures. They can accept a range of inputs/outputs for automated control.

In addition to these offices, Thermo Fisher Scientific maintains

a network of representative organizations throughout the world.

www.thermoscientific.com/fluidhandling

Thermo Fisher Scientific, Barrington, IL USA is ISO certified

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