

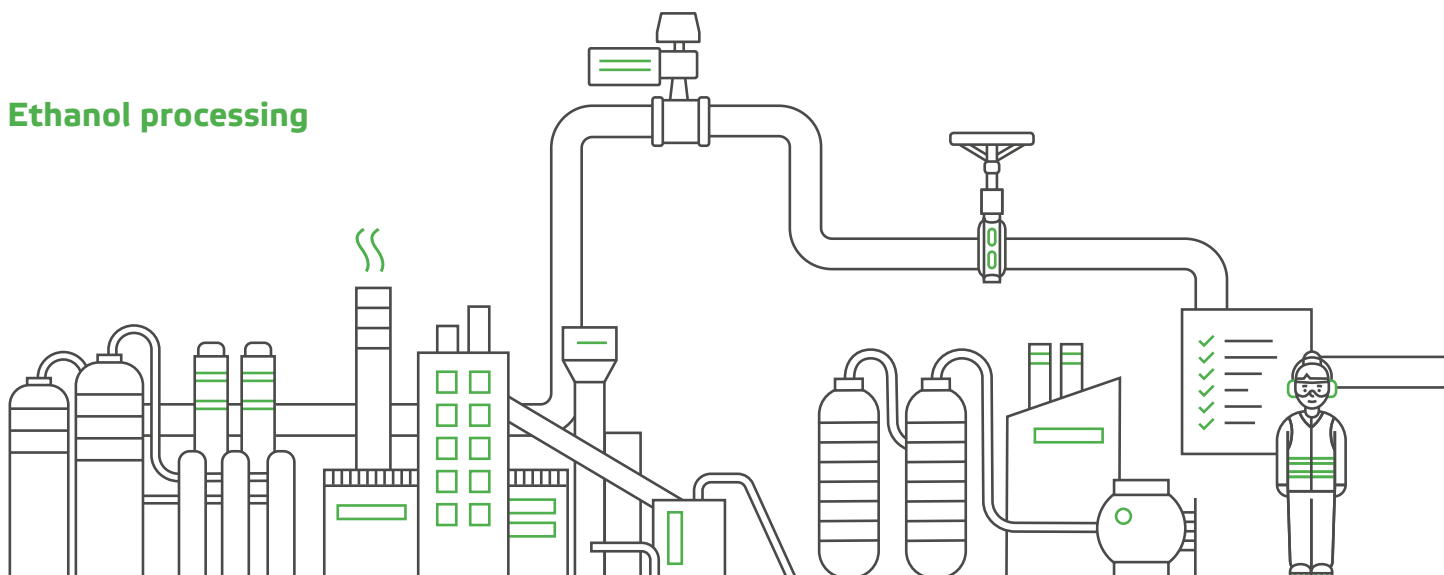
Consistent performance and end product quality

Valve solutions for ethanol processes



Flow control solutions for a greener future

Ethanol processing



Neles™ >>

Neles Easyflow™ >>

Jamesbury™ >>

Mash preparation process



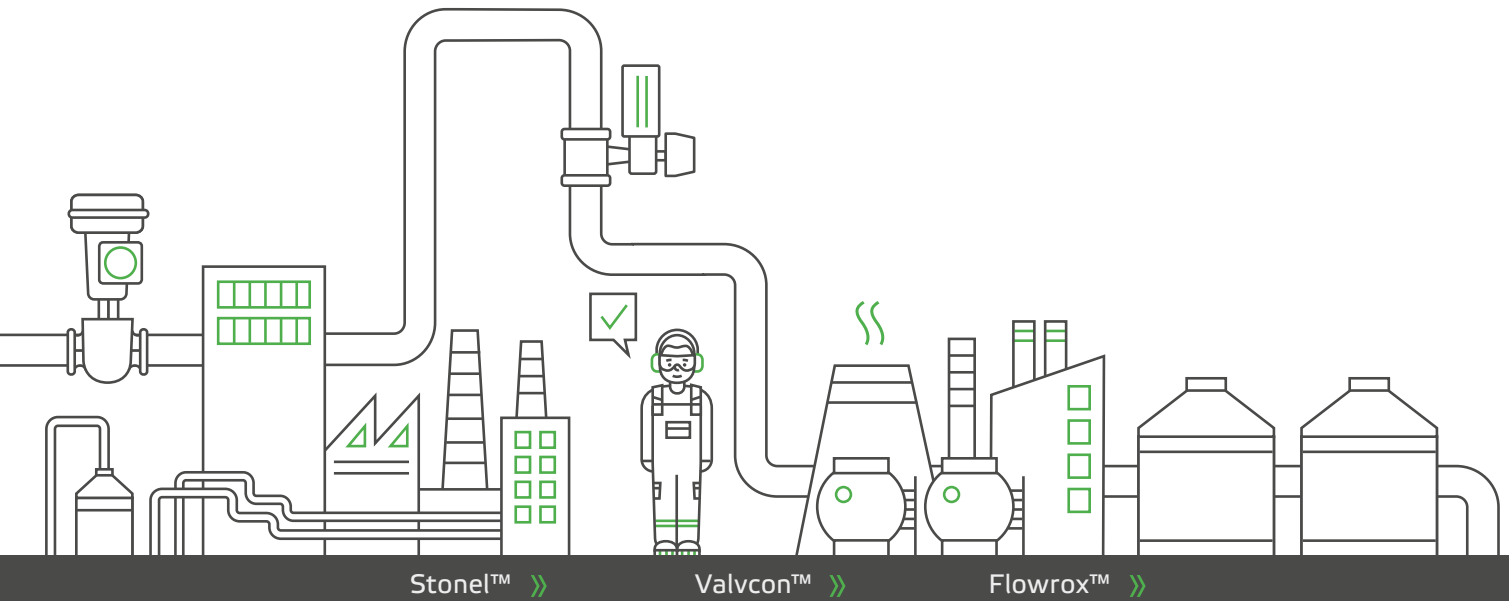
The first process in the production of fuel ethanol, which involves grinding and cooking mash. Our valve solutions can help mitigate issues related to erosion, control, leakage and noise reduction in a process with high temperature variance. Metal seats, special trims and unique sealing technologies make our valves especially suited for ethanol service.

Fermentation process



Mash is transferred to fermenters where yeast is added and the conversion of sugar to ethanol and carbon dioxide (CO₂) begins. The mash is agitated and kept cool to facilitate yeast activity. Leaky valves could have catastrophic consequences related to blending control or bacterial contamination. The right valves and accurate automated control ensure process quality.

Valmet offers a complete range of flow control solutions for every step of the ethanol process and across the entire plant lifecycle. Our leading Neles™ and Jamesbury™ valve products and expert support provide coverage from the production process all the way to safe storage and transportation.



Distillation process



During distillation ethanol is separated from the remaining liquid and concentrated to 190 proof. Tight shut-off and precise control is required to ensure accuracy in the process. As plants get bigger, so too do the valves. Bigger valves require longer downtime for maintenance, so it is critical to specify valves that perform reliably over longer periods.

Molecular sieve drying



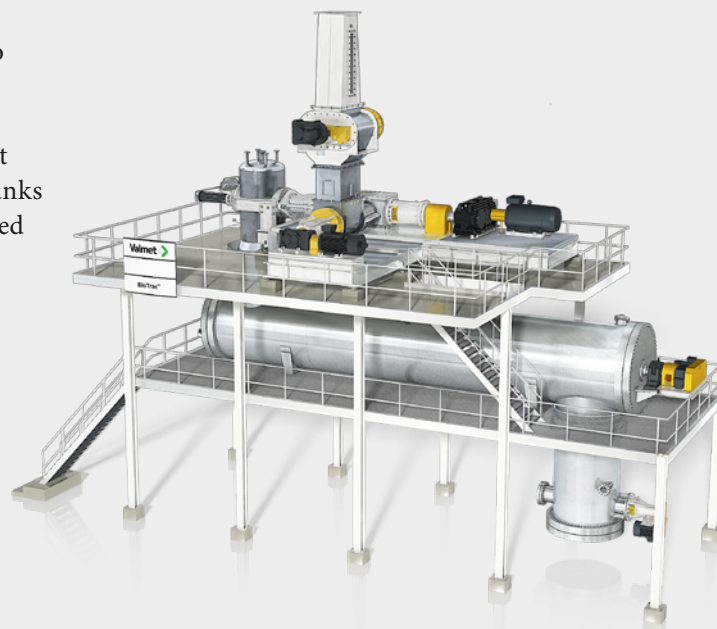
During this phase the last 5% of water is removed to form 200 proof ethanol. The separation is done at the molecular level, by dehydrating the ethanol in a molecular sieve system. The end product is extremely volatile, so ensuring precise control and zero leakages is absolutely critical. Only the best soft-seated control valves can provide the needed tight shut-off.

Valmet BioTrac Pretreatment

Valmet has utilized decades of experience in the pulp and fiberboard field to develop the Valmet BioTrac Pretreatment technology, a perfect solution for the initial hydrolysis step of second-generation bioethanol production.

The Valmet BioTrac Pretreatment solution is highly flexible in terms of process conditions, allowing it to be tailored to meet a broad variety of requirements in the overall process. It can handle essentially all lignocellulosic biomasses, including wood and forest residuals, wheat straw, corn stover, and bagasse. Thanks to its versatility the BioTrac technology can be applied for several different end products.

At Valmet's pilot testing facility, the process can be developed and optimized to fit the customers' unique process needs. Valmet offers systems ranging from pilot to commercial-scale plants. The majority of the ongoing delivery projects are now at a commercial scale.



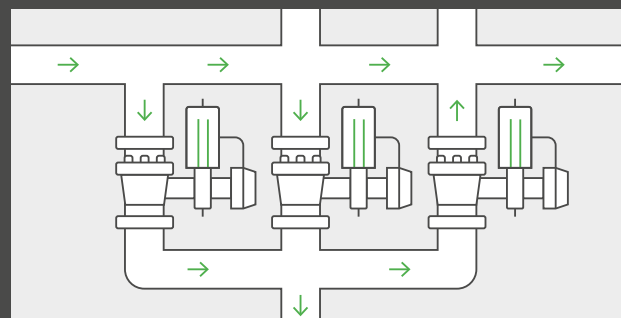
Carbon capture

Carbon capture is crucial when it comes to developing more sustainable industrial processes. It is a process that allows us to eliminate harmful CO₂ emissions into the atmosphere. Reliable carbon capture also plays a part in minimizing safety risks in a volatile process such as ethanol processing.

The safety and reliability of the valves we offer for use in carbon capture applications is why we are trusted. Our first valves for critical CO₂ applications have been delivered and commissioned back in the 1970s. Proven experience and continuous product development give today's valve offering a competitive edge.

Tightness, low pressure loss and the elimination of all external leakage are typically the features that all valves used in carbon capture processes need to have in common. This is a universal truth regardless of valve type and the specific role it has in a given process.

Material choices are also extremely relevant in these process conditions. CO₂ especially can be very corrosive when wet, making the selection of the correct component materials and coatings something that must be considered. Valmet has a wide range of suitable valves for every application with plenty of material and coating options. We also offer our expertise and tools to help you select and size the optimal solution for your carbon capture needs.



Valves for ethanol processing

Ethanol processing conditions			
Continuous operation / Slurry handling / Erosive fluids / High temperatures / Caustic and corrosive chemicals			
Neles Valves for ethanol processing			
Jamesbury™ Wafer-Sphere™ high-performance butterfly valves 	Jamesbury Quadra-Powr™ X spring diaphragm rotary actuators 	Neles™ pneumatic cylinder actuators, B1-series 	Jamesbury™ small weld/threaded end ball valves, 4000-series 
Flowrox™ pinch valves 	Jamesbury™ ball valves, 7000- and 9000-series 	Flowrox™ knife gate valves 	Neles™ V-port segment valves, R-series 
Neles Neldisc™ butterfly valves, L-series 	Neles ceramic ball valves, E-series 	Stonel™ Axiom™ valve controllers 	Neles intelligent digital valve controllers 
Features and benefits		Highlights	
• High reliability • High uptime • High process accuracy and efficiency • Corrosion resistant		• Low automation costs • Easy maintenance • Low maintenance needs • Very long service life • Very cost effective	
		Wafer-Sphere high performance butterfly valves offer significantly longer operation life than rubber lined butterfly valves, as well as delivering higher uptime and lower maintenance costs.	



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

Valmet Flow Control Oy

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