



# Match and mix

Solutions for agitation and mixing



# The right process

How you mix depends on what you mix. The right agitator or mixer for you is the one that gives you the best mixing results – and the best economy.

Many applications, such as maintaining suspensions or keeping mixtures homogenous during storage, are best served by agitators. Among other things, agitators are well adapted for working with high-viscosity media or fibrous or abrasive ingredients.



# for the right product

Other applications benefit from new technologies. The unique characteristics of rotary jet mixers offer new opportunities and new ways to save. And the superior coupling of magnetic mixers has advantages for the biopharm industry.

To find the right technology for you, you need a supplier who understands them all. Alfa Laval has a complete portfolio with agitators, rotary jet mixers, magnetic mixers and all the equipment to support them.



# Your mix decides the method

As the leading supplier of hygienic mixing solutions, Alfa Laval offers a full spectrum of options for hygienic industries.

Which mixing technology is the right one for you depends on your industry, application and goals. With our extensive knowledge of mixing and specific industry applications, we can provide you with relevant advice and suggest the best technology to meet your specific needs.

For more information about our mixing range, as well as selection recommendations, please visit [www.alfalaval.com/tankequipment](http://www.alfalaval.com/tankequipment)



# Agitators

## Modular simplicity

Alfa Laval agitators are flexibly built from a series of modular components. This not only simplifies installation and service, but also allows customization for the best balance of performance and price.

Our agitators can be delivered in top-mounted configurations with or without bottom support, as well as in bottom-mounted or side-mounted configurations.

## Advanced hygienic design

Through low-shear performance and uncompromising hygiene, Alfa Laval agitators safeguard end-product quality. Our agitator range has a strong hygienic focus and facilitates compliance with EHEDG, USDA, FDA and 3A guidelines.

The smooth and flow-optimized form of our agitators is complemented by our impeller design, which combines maximum flow rate with gentle product treatment.

Alfa Laval's energy-saving agitators are modular, which makes them easy to customize for specific applications.

## Substantial energy savings

Our EnSaFoil impellers, as well as our specially developed EnSaFerm impellers for fermentation use, reduce energy consumption and the absorption of heat by your product. Based on extensive fluid dynamic studies, their unique shape makes them up to 400% more efficient than impellers with a standard pitch.

Besides minimizing energy loss, our impellers operate at reduced speeds without reducing pumping capacity. Compared to agitators with conventional impellers, they thereby lower agitator power consumption by up to 80%.

Comparison of a traditional LKR-5 installation with Alfa Laval's modern ALS agitator installation (based on 18 hours of operation daily):

	Traditional installation (LKR-5)	Energy-saving installation (ALS)
Speed	960 rpm	272 rpm
Pumping capacity	30 m <sup>3</sup> /min	37.3 m <sup>3</sup> /min
Installed power	11 kW	4 kW
Power draw	6.4 kW	3.5 kW
Energy consumption	42,048 kWh	22,995 kWh

Annual savings for electrical power (at € 0.07 per kWh) = €1,334  
Payback time based on power savings alone <17 months

# Rotary jet mixers



## Modern mixing efficiency

Alfa Laval Iso-Mix rotary jet mixers are a patented, cutting-edge solution for fast and effective mixing. Positioned below the liquid surface and driven by the pump in a recirculation loop, they are used to inject fluid, gas or powder through jet nozzles that rotate horizontally and vertically.

This allows thorough mixing with minimal time and energy consumption. Though the mixing is extremely rapid, the fluid itself is not caused to rotate, so no tank baffles are necessary.

## Application potential

The unique characteristics of rotary jet mixers yield fast returns. This has been demonstrated in hundreds of installations.

Breweries have used rotary jet mixers to shorten beer fermentation time by 30%, enabling a direct increase in profits. And in soft drink production, the use of rotary jet mixers has been shown to reduce investment costs by more than 50%.



Iso-Mix rotary jet mixers inject fluid, gas or powder through rotating jet nozzles – without causing the liquid to rotate.

## Consolidating your application

Since individual rotary jet mixers handle multiple processes, there is less equipment to install. In fact, applications that once required several tanks can now be performed in just one.

Compatible processes include:

- Liquid mixing
- Gas dispersion (e.g. carbonation or deaeration)
- Powder mixing (direct or by means of a tri-blender)

The more processes handled by a single machine, the more economical rotary jet mixing becomes. And as a bonus, rotary jet mixers can be used as tank cleaning machines once the tank is empty.

# Magnetic mixers



## Frictionless operation

Patented Alfa Laval magnetic mixers make use of an internal impeller and an external drive head, coupled by means of embedded magnets. In contrast to similar solutions on the market, the impeller levitates on a strong magnetic field rather than resting on the axial guide bearing.

This eliminates axial contact and friction, which greatly reduces the potential of bearing failure. As a result, our virtually fail-safe magnetic mixers can be run no matter what the level in the tank – so that every last drop can be mixed.

## Mixing at any speed

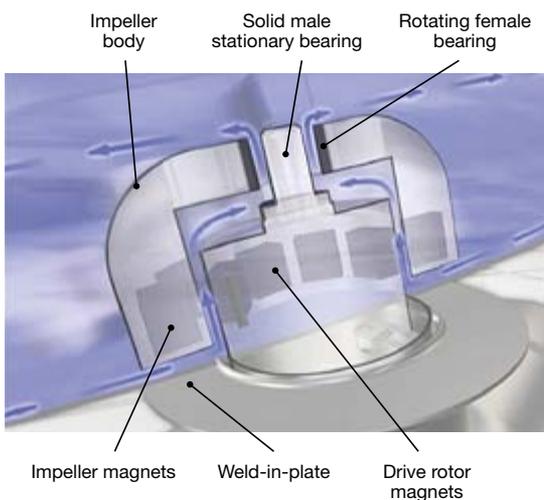
Without the limits of friction, our magnetic mixers achieve speeds as high as 750 RPM. This allows the turbulent, high-shear mixing created by a vortex.

In addition, our magnetic mixers are effective at speeds as low as 5 RPM. With eight impeller wings instead of three or four, they have a larger combined blade area and a greater pumping effect. This allows strong agitation, even in the case of sensitive products with low RPM requirements.

## Exceptional cleanability

With their seal-free construction and open design, our magnetic mixers maximize cleanability. Because the impeller levitates, cleaning fluid flows freely over the bearing surfaces and removes any trace of residue.

Since the impeller runs safely even when the tank is empty, there is also a seamless transition from mixing to cleaning. Rather than waiting for the impeller to stop, cleaning can begin once the last drop of product is drained.



The patented impeller of Alfa Laval's magnetic mixers levitates on a magnetic field, which greatly reduces friction and maximizes cleanability.

### **Alfa Laval in brief**

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

### **How to contact Alfa Laval**

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)

