

Mixertech Limited



MIXERS FOR

THE FOOD, BEVERAGE

AND PHARMACEUTICAL

INDUSTRIES

BLENDING

Using either top or side entry mixers, Mixertech has the solution for every blending application. High pumping rates combined with low power consumption ensure the most cost effective systems for applications as diverse as margarine, beer and shear-sensitive milk based products. Although the design of these mixers seems simple, sophisticated impeller configuration is the key to success.

The Mixertech HA700 Hydroblade impeller combines the two keys to efficiency, high pumping rate and low drag factor, equating to a large primary flow with low power demand.

Alternatively, our Instamix inline static mixer is efficient, reliable, easy to install and eliminates the necessity for sealing systems.

Low capital, operating costs and maintenance costs add up to improved productivity and higher profitability.

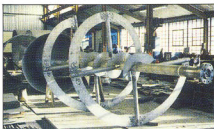


HIGH VISCOSITY

The mixing of chocolate pastes and gels requires a very special understanding of mixers. Anchors and Helical Ribbons no longer follow the same hydraulic response that multi-bladed impeller systems do. To compound the problem, the product usually behaves as a non-Newton fluid and, therefore, close cooperation becomes essential between the supplier and the end user, in order to obtain the correct mixing system.

The combination of the Helical Ribbon and the Archimedes Screw is excellent for ensuring high product movement throughout the vessel.

The Anchor mixer gives good surface movement to the tank wall which produces a high heat transfer coefficient especially in viscous fluids

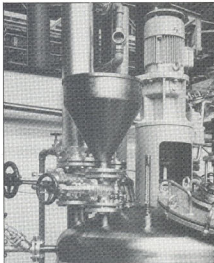


HEAT TRANSFER

In heat transfer applications such as cookers the major objective is to provide a high primary flow volume combined with a good circulation pattern and high fluid velocities over the heat transfer surfaces.

Heat transfer cannot be directly improved by increasing motor power. In turbulent flow conditions, a 100% power increase will only produce 15-20% increase in the mixer side heat transfer coefficient.

Impeller design and positioning are the keys to efficient operation, as well as providing additional benefits such as reduced scale or crust formation, the dispersion of hot gasses or live steam.



COOKERS AND FERMENTERS

Especially applicable in the brewing and food industries, either top or side entry mixers combined with the high pumping rate HA703 impeller systems offer the ideal combination of optimum heat transfer, minimum batch times and the lowest power costs available.

Hygienic requirements are maintained at all times with our aseptic sealing systems, and combined with CIP facilities allow fast tank turnarounds.

CRYSTALLISERS

Crystals are usually very friable by nature, and excessive shear caused by tip speed or blade profile will lead to their breakdown. To overcome this problem, Mixertech have developed the HA710 Hydroturbine mixer which has a wider than normal blade width, to produce a strong head when pumping. This is ideal for sugar pan circulators where high pressure heads are required to pump the molasses through the calandria. Mixertech have also developed multi impeller systems which produce the required hydraulic response in tall slender tanks without additional in-tank structures.

SOLID DISSOLUTION

This very common mixing application is often misunderstood. Normally, this is a rate mass transfer mixing duty. Provided that the impeller system can generate the necessary primary flow volume and that the circulation pattern is sufficient to ensure no dead spots or stagnant areas, then the product will dissolve given time. If faster dissolution rates are required in a reaction rate system, it would be better to examine the effects of heating up the product, rather than providing more agitation. Again, the HA700 hydroblade is best suited to give the high flow rates required. Should the solids dissolve according to a mass transfer controlled reaction, then the addition of more power will increase the reduction rate, and a medium shear impeller may be used like the standard pitch blade turbine (PBT). Occasionally the solids are difficult to "wet" as with gums, resins and some adhesives - here high shear is required to break down the outer skin combined with a pumping rate which must ensure a high effective tank volume. A single shrouded high shear impeller can be used; however, a combination of high shear disc (HSD) and hydro-blade is a better alternative. (Series 250).

HOMOGENISERS

The Mixertech 250 range of high shear mixer emulsifiers combine shear with efficient pumping as the ideal solution to many mixing challenges. As the mixer operates, the product is initially drawn into the bottom of the head and then is intensely mixed by the high speed rotating action. Upon expulsion from the head, intense shearing action at high velocities break down agglomerates and oversized particles and produce homogeneous emulsions or dispersions.

This process sets up a circulation pattern which ensures that the whole mix passes through the working head continuously, resulting in efficient mixing and batch homogeneity.

MIXER DRIVES

The heart of every mixer is the gearbox. Mixertech have 5 types of mixer drives to suit your application. Each employs the very latest technology which has been built up over many years.

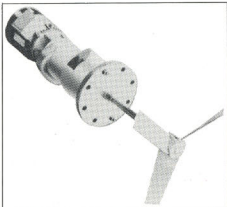
Precision ground gears used in the purpose made mixer drives ensure high efficiency and economic operation from the smallest to the largest units.



SIDE ENTRY MIXERS

In many applications, side entry mixers have considerable advantages over the conventional top entry configurations. Top entry mixers require a long shaft and large heavy impeller combined with a suitable heavy duty gearbox to carry the forces generated when mixing. It also requires a mounting structure to carry this additional mass as well as in tank features such as anti vortexing baffles.

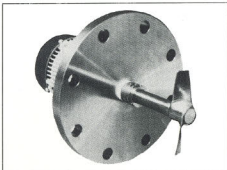
Side entry mixers, however, operate closer to the bottom of the tank with a shorter, lighter shaft. The impeller is smaller, and generates the maximum flow where it is required, at the bottom of the tank. If the mixer is positioned on a suitable manhole, mounting, installation and maintenance costs are kept to a minimum and by correctly offsetting the mixture, no additional in-tank baffles or anti-vortexing devices are required. The Mixertech 5150 series side entry mixer is the ideal option in storage applications, providing low shear high flow characteristics in both horizontal and vertical tanks with capacities ranging from 2000 litres to 200 cubic metres.



MAGNETIC DRIVES

Mixertech has taken full advantage of the latest developments in Rare Earth Magnets which are able to efficiently connect the exterior power source with the high efficiency HA700 hydroblade impeller.

This combination allows our customers to remotely maintain the equipment and provides completely sterile in-tank conditions. The drive may be disconnected and reassembled on other vessels which contain the mixing elements, thereby making maximum use of the drive and minimizing capital expenditure.



STATIC MIXERS

Static mixers are theoretically a simple and cost effective method of blending products reliably. Most suppliers of static mixers however concentrate upon mixing elements with little or no attention being paid to the injection and discharge configurations. If either of these critical factors are poorly designed, inadequate mixing will result.

Not only does the Mixertech Instamix range come supplied with its uniquely designed injection systems ensuring better mixing, but the helical twist given at the point of discharge is counteracted by stabilising flow vanes, ensuring that separation further along the line cannot occur and that which is mixed stays mixed.



JET MIXING

This innovative mixer, which combines Kestner's vast experience on pumping applications with Mixertech's mixing technology, is used to solve simple blending applications at an extremely economic cost and in areas where previously conventional mixing could not be used.

The Mixertech Jet Mixer offers a simple solution to applications where, due to varying densities of incoming products a simple blending system is required. The high precision Jet Nozzle has been specifically developed for a wide range of mixing applications and has found wide acceptance in the Petrochemical, Pharmaceutical and Beverage industries.



YOGHURT

Yoghurt at low temperature becomes a viscous product which requires special blending techniques to ensure correct chilling and mixing of the fruit without damage. Because fruit yoghurt is a milk product, incorporating pure natural fruit, fruit juices and jams, exceptional hygiene standards are required. The crevice-free HA700 food duty impeller has proved to be ideal for this and similar applications.

The three points which are essential to good mixing are to ensure that the rennet is thoroughly blended into the whole or skim milk, to ensure that the fruit is uniformly distributed throughout the batch, and that the coagulated fluid is completely mixed.

All of these requirements can be met using the Mixertech top entry 1000 Series Mixers, and can be maintained during pumping with the INSTAMIX inline static mixer range.

SUGAR

For sugar dissolution, only vertical tanks, concave or dished ends should be used.

Applications for Mixertech agitator systems not only include conventional sugar syrup and sugar dissolution but have also been applied in the suspension of fruit particles, using the HA703 high flow low shear impeller, where low tip speeds are required, and special precautions need to be taken to ensure that air is not introduced into the system.

Sugar pan circulation in vacuum pans

The Mixertech range of HA740 / HA750 mixing systems have been specifically designed to pump a wide range of high viscosity masse cuite and pan strike times have been reduced by 50 % by using this new generation of sugar pan mixers. Improvement in crystal formation and plant controllability are additional benefits.

MILK, WINE & MARGARINE

Mixertech Series 5150 side entry mixers are ideal for both horizontal and vertical tanks, of capacities from 2000 litres to 200 cubic metres, providing low shear high flow rate mixing to ensure that the required duty is performed without product damage.

Manufactured to the most hygienic standards, the Mixertech 5150 range combines design simplicity with impeller sophistication for optimum operating efficiency.

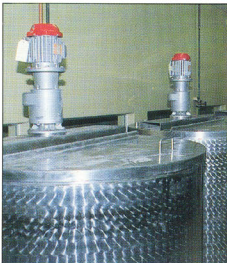
SYRUPS, JAMS & CHOCOLATE

Mixers for these duties can be split into two sections.

The first application is for cookers where good heat transfer and thorough mixing is required with gentle blending of the fruit.

Here the Mixertech HA700/703 is ideal because of its low shear characteristics and high pumping rates at low tip speeds.

Burning is overcome by good flow velocities at the vessel wall thereby ensuring an even temperature profile. The second duty is in the refrigeration tanks where heat transfer is of utmost importance at high viscosities. Here Mixertech have successfully used the 3 bladed HA730 hydro-blade which produces thorough mixing and maximized wall velocities in this situation.



ASEPTIC SEALS

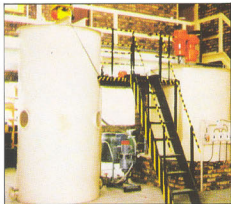
Mixertech aseptic seals incorporate a lip seal assembly which is virtually maintenance free and is capable of running dry. Facilities are provided for flushing with CIP fluids or steam / gas purging to achieve 100% cleaning in place. Special precautions are taken to ensure that no crevices are present and that maintenance is reduced to a minimum. The standard finish of 180 grit on 316 stainless steel parts ensures a hygienic finish.



RESEARCH AND DEVELOPMENT

Mixertech's constant research and development policy has been the key to our growth in the food and beverage industry

Our devotion to continuing development and innovation has led to a more basic understanding of impeller technology and process requirements, allowing us to offer with confidence the **DOUBLE GUARANTEE** for both **PROCESS** and **MECHANICAL** components.



EXPERIENCE

One of the most important considerations when buying any mixer system is knowing that it will do the job - and carry on doing it for a long time! Others talk about it, we guarantee it - **TWICE!**

The experience of our application engineers ensure the correct and most cost effective design to achieve your specified duty.

Our design features and methods of construction ensure it keeps on doing it. We guarantee that it will do the job, and we guarantee that it will keep on doing it. Our laboratory can guide you in the correct selection of your equipment and our application engineers can help you in the design of your tank baffles, mounting structures etc.



IMPELLER TECHNOLOGY

The variety of Mixertech impellers is as wide as there are applications in the food and beverage industry. High shear to mild blending, 200 litres or 200 cubic metres, Mixertech has the answer and the track record. If you have a mixer problem, or require assistance with mixer selection, or simply want better more cost-effective mixing give us a call today. We are here to help you understand more about mixing.



All units are manufactured in the United Kingdom to suit European conditions

Mixertech Limited

FOR MIXING TECHNOLOGY
"Member of the Kestner Industries Group"

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