

MILLIPORE



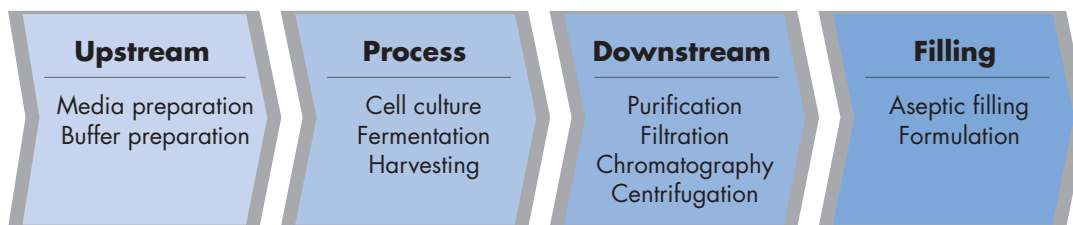
NovAseptic[®] Mixers

The Right Mix
for Your Mixing Applications

- ▶ A complete range
to meet your processing requirements

NovAseptic® Mixers

NovAseptic mixers offer a complete solution for mixing throughout the process line and are designed for a wide variety of mixing applications in the pharmaceutical and biotechnology industries.



The product range includes several mixer models, so you can find the right mixer for your process and scale.

- ▶ NovAseptic GMP Mixer — general blending
- ▶ NovAseptic USM Mixer — upstream mixer, medium shear
- ▶ NovAseptic HS Mixer — high shear mixer
- ▶ NovAseptic HSI Mixer — high shear inline mixer



NovAseptic GMP mixer



NovAseptic USM mixer



NovAseptic HS mixer



NovAseptic HSI mixer

Why Use NovAseptic Mixers?

- ▶ Wide product range with complete solutions for aseptic mixing
- ▶ Superior mixing performance

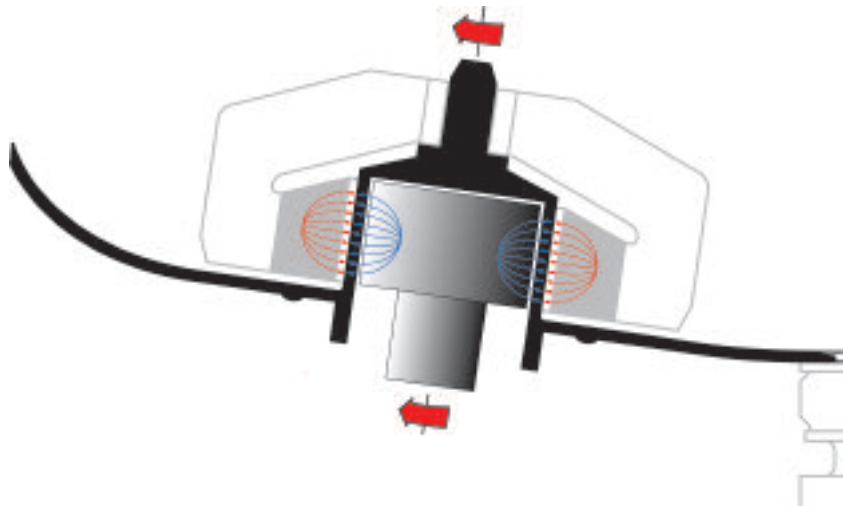
Significant advantages of NovAseptic mixer design

robust design

NovAseptic mixers are engineered for optimal performance, reliability, durability and ease of maintenance. The design and development of each component is focused on aseptic design and based on more than 20 years of experience.

magnetically coupled

One of the significant advantages of the magnetic drive is that it enables the total integrity of the tank. No shaft is led through the tank wall which could cause leakage and challenge the integrity of the vessel and its contents.



bottom mounted

Magnetically-driven mixers have other advantages which are not related to integrity. Dismantling a NovAseptic mixer is easy, whereas a top-driven mixer often requires a mechanical lifting device. NovAseptic mixers also have the ability to mix even when the vessel is almost empty, because the mixer is nearly flush with the bottom of the vessel.

focus on aseptic design

Each NovAseptic mixer complies with the most stringent cleanability and sterilizability requirements. All models are completely cleanable- and sterilizable-in-place (CIP/SIP).

- ▶ **Bottom mounted**
 - low level mixing
 - easy maintenance

- ▶ **Magnetically-driven**
 - no mechanical seals
 - minimizes contamination risk

- ▶ **Completely and easily cleanable- and sterilizable-in-place (CIP/SIP)**

- ▶ **Option to test and optimize mixing performance at the Pre-Validation Center**

Pick your application



general mixing

There are two NovAseptic Mixer models for general mixing and suspensions.

- The **GMP mixer** is the standard model, and is top-of-the-line when it comes to the most critical applications in your process steps that have high demands on cleanability and SIP. The GMP mixer is clean running and is suitable for general mixing, heat transfer and shear sensitive applications.
- For upstream processes, the **USM mixer** is a perfect option. This mixer is a superior alternative to top-mounted mixers in upstream mixing applications. The USM mixer creates medium high-shear forces and transfers much more energy into the tank than the GMP mixer, and is ideal for mixing difficult powders into a liquid.

high shear mixing

Two models of NovAseptic Mixers are available for high shear applications involving insoluble media such as emulsions, dissolving, or solids that need to be wetted or downsized.

- The **HS mixer** is installed into a tank and is used for volumes up to 1,500L (shear rates from $20,000s^{-1}$).
- The **HSI mixer** is an inline version of the HS mixer, developed for inline powder additions and for blending or particle size reduction. This unit has shear rates from $20,000s^{-1}$ and can transfer product between two tanks.



multiple mixer combinations

For certain applications, different mixers can be combined in order to achieve the desired result. For example, an HS mixer creates the high shear forces needed to create an emulsion, while the GMP mixer is used to break the vortex and create additional agitation and balance in the tank. A variety of powerful results can be achieved this way, such as controlling vortex to prevent foaming, increased agitation, etc.

Optimizing your mixing process

pre-validation center

Enhanced performance, repeatability and the ability to clean- and steam-in-place are all critical considerations when specifying an aseptic mixing process. These features are built-in with the NovAseptic mixer product range.

Millipore can help you design your process to optimize your mixing steps. Our fully equipped Pre-Validation Center includes the capability to perform live representative tests on your product or process. This center offers several sizes and types of test vessels—sizes up to 5,000 L with steam are possible. Together with our experienced mixing specialists you can verify and optimize your aseptic mixing process with the powerful toolbox of NovAseptic Mixers, making it easy to find the right mix for your processing requirements.

Production and quality control

NovAseptic Mixers are manufactured in accordance with best practices in quality and undergo a quality control program prior to delivery. The quality control program includes a number of checkpoints to ensure that the mixer parts comply with the highest quality standard, including:

- Batch number is identified, and quantity is verified against the purchase order.
- All parts in contact with media are marked with individual ID numbers for full traceability.
- Measurements are verified against the corresponding drawing.
- The surface finish is measured with a Perthometer to ensure that the Ra value corresponds to the specific order.
- Each drive unit is test-driven before delivery.

A Certificate of Quality is supplied for each mixer part and is delivered with the product.

The right mix

Contact Millipore for your mixing application needs.
1-800-MILLIPORE
www.millipore.com/mixers



**To Place an Order
or Receive Technical Assistance**

For additional information call your nearest Millipore office:

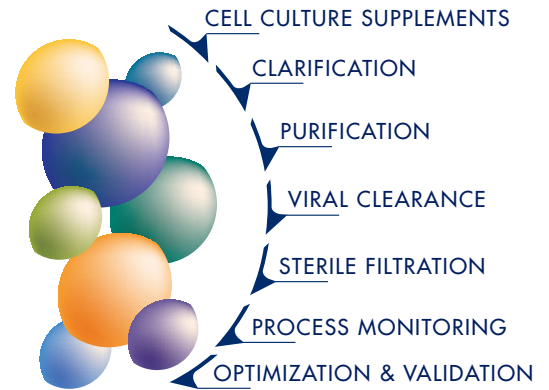
In the U.S. and Canada, call toll-free
1-800-MILLIPORE (1-800-645-5476)

In the U.S., Canada and Puerto Rico, fax
orders to **1-800-MILLIFX (1-800-645-5439)**

Outside of North America contact your
local office. To find the office nearest you
visit www.millipore.com/offices.

Internet: www.millipore.com

Technical Service:
www.millipore.com/techservice



MILLIPORE

Millipore and NovAseptic are registered trademarks of Millipore Corporation or an affiliated company.
Lit. No. PB1200EN00 Rev. - 09/06 06-252
© 2006 Millipore Corporation, Billerica, MA 01821
U.S.A. All rights reserved.