Mixing and Processing Technology

designed to work perfectly
Welcome to the IKA® group

IKA®-Werke GmbH & Co. KG in Staufen, Germany can now look back on a century of history.

The company which was founded in 1910 as a distributor for pharmacies and hospitals, was relocated from bombed-out Cologne to Staufen in 1942. There it quickly became the global market leader for laboratory technology as well as dispersing, stirring, and kneading machines. Today, IKA® employs over 800 people at eight different locations in four continents.

In the past decades the process equipment division of IKA® has attained a leading position in the mixing industry, as well as for engineered systems. This presence was established and strengthened by the IKA® innovative technology. Our high-quality stirring, mixing and kneading machines are widely used from the pharmaceutical to bitumen industry.

DIN EN ISO 9001

For more information please visit www.ikaprocess.com

Executed in IKA® quality

Every IKA® product undergoes a final product quality test before it leaves our facility. An operational test and complete inspection ensures that every machine will be easily integrated at the customer’s plant.
The machine program of IKA® is as diverse as the mixing industry itself. We specialize in solving the most difficult mixing applications for the processing industries.

In order to provide a solution for almost any mixing application, we have developed a series of machines. The IKA® 2000 series offers more options than any other in the mixing industry, including: wet milling, high shear dispersing, powder-liquid incorporation and more!

For batch and continuous processes, IKA® offers a complete line of high quality stirring, mixing and dispersing machines.

Continuous research and development, along with applying many years of experience, provides the basis for the IKA® philosophy.

Partnering with customers and research universities, IKA® is continuously developing new technologies and applications.
Innovation & Awards

It was a special honor for IKA® to receive the award shown on the right, confirming the unlimited use of the MHD 2000 in the chemical process technology. This machine has been developed for the inline and continuous mixing of solids into liquids.

Additionally, the Food and Drug Administration (FDA) awarded IKA® the 3A-sanitary approval for the complete new line of series 2000 machines. Another proof substantiating IKA® professional know-how.

Regular patent applications testify to the steady development, whereas ISO certification is securing the high quality standard.

Industries:
> Food
> Chemical
> Pharmaceutical & Bio-Technology
> Personal Care & Toiletry
> Household Products
> Cosmetic
> Paper & Pulp
> Paints, Pigments and Coatings
> Petrochemical & Automotive
> Energy, Waste Disposal & Recycling
> Electronic
> Bitumen

IKA® magic LAB® 2000/03
The smallest MHD from the modular design series 2000. Equipped with the same tools and processing parameters as the industrial scale mixers, it is the ideal device for development of recipes, adaptation of processes, and of course for technical specification of production size machines. It should not be missing in any laboratory!

Industries & Applications

Emulsifying – liquid/liquid systems
- margarine
- ice cream
- proteins
- creams and lotions
- mayonnaise
- salad dressing and sauces
- micro-encapsulations

Powder – Liquid Incorporation
- starches
- gelatin
- emulsifiers
- sugars
- xanthan and guar gum
- carboxylic polymers
- stabilizers
- pectin

Wet Milling / Suspending – liquid/solid systems
- titanium dioxide
- pigments
- metals
- polishing agents
- seeds
- micro-encapsulations
- carbon black

Homogenizing – concentrating particle size distribution
- flavors and essences
- creams
- coatings
- inks and lacquers
- fruit punches

In addition, IKA® high shear mixers have been proven in many other applications, such as:
- Decomposing - organic tissue/plants
- De-agglomeration / de-lumping
- Precipitation - dehydration
- Chemical reactions / gassing - O2 / H2
- Extracting - vortex extraction
- Shred / Macerate / Crush / Pulverize

Dissolving – molecular/colloidal
- dyes
- crystal powders
- salts
- detergents
- sugar
- binding agents
- hydrocolloids
- elastomers
- resins
- thixotropic agents

Powder – Liquid Incorporation
- starches
- gelatin
- emulsifiers
- sugars
- xanthan and guar gum
- carboxylic polymers
- stabilizers
- pectin
Inline Dispersing Solid-Liquid Mixing

The details make the difference!

A high quality belt drive, along with a premium efficient, inverter-duty motor provides an efficient and flexible drive system. Scalability is ensured by maintaining a constant shear rate on all machine sizes. A cartridge seal minimizes assembly and disassembly time, and offers optimum reliability.

IKA® uses high quality materials for exceptional mechanical strength and corrosion resistance. By working closely with our customers and research institutions, the generators have been optimized for improved dispersing and efficiency. Generators are also available in many materials other than stainless steel for abrasive and corrosive applications. Some other key features are superior surface finishes, lack of dead spots, and designs that meet the stringent requirements of the FDA, EHEDG and 3A. IKA® Mixers can be cleaned or steamed in place. The 2000 Series has so many benefits, there are too many to list!

Applications

> Sauces
> Fruit juices
> Marmalades
> Sugar solutions
> Dyes
> Binders
> Molten resins
> Lotions
> Adhesives
> Stabilizers

The economic ULTRA-TURRAX® UTL 1000 machines are used for homogenizing and dispersing (emulsifying/suspending) of pre-mixed liquid-liquid or solid-liquid substances.

The machine has a pump effect which can circulate the product up to a viscosity of about 1,000 mPas. For higher viscosities, the use of a feeding pump is recommended. The dispersing tool is exchangeable and can be adapted to many different process requirements.

The mixing chamber is mounted horizontally and the dispersing tool directly coupled to the motor shaft.

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**Benefits of the 2000 series**

- Self-draining due to vertical orientation
- Dead spots are eliminated
- Surface finishes meet FDA, 3A and EHEDG
- CIP and SIP capable
- Extensive mixing tool options
- Low noise levels
- Designed to meet food and pharmaceutical industry standards
- Suitable for high pressure and temperature
- Cartridge seal can convert into Single or Double mechanical
- Directly Scaleable by maintaining constant tip speed

**Applications**

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**Series 2000 | Sophistication in the details**

**Modular design – Provides better value and flexibility**

2000 Series – Modular Design | A system with a great future!

As diverse as the mixing industry may be, there are many similarities from one machine to the next. IKA® has developed a new modular series of machines that takes advantage of these similarities. A basic drive unit can be fitted with a multitude of different machine heads, providing a solution for almost any mixing application. Our engineers, in cooperation with our customers, combined their expertise to develop the most innovative machine program in the industry!

The UTL is a single stage dispersing machine used for the production of emulsions and suspensions requiring a coarse to medium particle size with a narrow distribution. A wide variety of rotor-stator combinations (generators) are available for adapting the machine to the application.

The UTL maintains a constant tip speed, regardless of machine size, ensuring scalability. A wide range of options is available on the motor, base, materials of construction, and more. The ULTRA-TURRAX® has high quality surface finishes for easy cleaning, and the machine is self-draining and CIP capable.

**Applications**

- Sauces
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**Type Flow rate* [l/h] Motor power [kW] Motor speed [rpm] Circumferential speed [m/s]**

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<tr>
<th>Type</th>
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<th>Motor speed [rpm]</th>
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* Self pumping rate based on H2O and standard tool configuration
The DISPAX-REACTOR® is a high shear, three stage dispersing machine for the production of micro-emulsions and very fine suspensions, for wet milling and deagglomeration of fine solid particles. Three rotor-stator combinations (generators) in a series produce a small droplet or particle size, with a very narrow distribution. The generators can be easily interchanged, offering the ultimate in flexibility. The DR line offers the same advantages as the UTL for scalability and sanitary design, and is CIP and SIP capable.

Generators available: Coarse, Medium, Fine, Superfine, 2P.

It is well known that tip speed, and therefore shear rate, is one of the most important factors in achieving the finest micro-emulsions. The SUPER DISPAX REACTOR® combines extremely high shear rates with a fine generator geometry to produce the ultimate in high energy dispersing.

Due to the high tip speeds, two stages are often all that is needed to achieve the results that are desired. The DRS is designed with the same high quality features as the UTL and the DR, and is especially suited for even the toughest pharmaceutical applications. The DRS can be an alternative to costly high pressure homogenizers.

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