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

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

In recent decades, the process equipment division of IKA® has attained a leading position in the mixing industry, as well as engineered systems. This presence was established and strengthened by the innovative technology of IKA®. Our high-quality stirring, dispersing, mixing and kneading machines are widely used in the pharmaceutical, chemical, food, color and dye, cosmetics, biotechnology, as well as nanotechnology industries.

For more information, please visit www.ikausa.com
Welcome to the IKA® group
Where the future of the industry begins

Executed in IKA® quality

Every IKA® product is submitted to 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 developed a new modular 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, particle size reduction and more!

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

Continuous research and development, in conjunction with our many years of experience, provides the basis of the IKA® philosophy.

By partnering with customers and research universities, IKA® continuously develops new technologies and applications.
 Inline Mixing + Dispersing
ULTRA-TURRAX® Inline UTL 1000
ULTRA-TURRAX® Inline UTL 2000
DISPAX-REACTOR® DR 2000
DISPAX-REACTOR® DRS 2000
Colloid Mill MK 2000
Cone Mill MKO 2000
Corundum Disk Mill MCD 2000
Inline Disperser DBI 2000
Solid-Liquid-Mixer CMX 2000
Solid-Liquid-Mixer MHD 2000

Systems and Plants

26
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, IKA® are built to meet FDA, 3A and EHEDG requirements. This further substantiates the IKA® professional know-how.

Regular patent applications testify to the steady development, and ISO certification secures the high quality standard.

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

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

#### Industries & Applications

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

**Powder – Liquid Incorporation**
- starches
- fumed silica
- milk solids
- cellulose
- sugar
- xanthan and guar gum
- carbopol
- pigments
- fillers
- pectin

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

**In addition, IKA® high shear mixer technology has 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

**Wet Milling / Suspending – powder / liquid systems**
- titanium dioxide
- pigments
- metals
- polishing agents
- seeds
- micro-encapsulations
- carbon black
- catalytic agents
- graphite
- clays
- sulfur
- crystals
- slurries
- API

**Homogenizing – concentrating particle size distribution**
- flavors and essences
- creams
- coatings
- inks and lacquers
- tooth paste
- dressings
- cheese spreads
- jams
- spice concentrates
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!
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 is directly coupled to the motor shaft.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal flow rate*</th>
<th>Output</th>
<th>Nominal Tip Speed</th>
<th>Motor power</th>
<th>Inlet/Outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(gpm)</td>
<td>[l/h]</td>
<td>(rpm)</td>
<td>(fpm)</td>
<td>(m/s)</td>
</tr>
<tr>
<td>UTL 1000/10</td>
<td>35</td>
<td>8,000</td>
<td>3,600</td>
<td>3,900</td>
<td>20</td>
</tr>
<tr>
<td>UTL 1000/20</td>
<td>100</td>
<td>20,000</td>
<td>3,600</td>
<td>5,750</td>
<td>29</td>
</tr>
<tr>
<td>UTL 1000/30</td>
<td>200</td>
<td>40,000</td>
<td>1,800</td>
<td>5,150</td>
<td>26</td>
</tr>
<tr>
<td>UTL 1000/40</td>
<td>400</td>
<td>80,000</td>
<td>1,800</td>
<td>5,150</td>
<td>26</td>
</tr>
<tr>
<td>UTL 1000/50</td>
<td>600</td>
<td>125,000</td>
<td>1,200</td>
<td>4,680</td>
<td>24</td>
</tr>
</tbody>
</table>
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 mixing 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!

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
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.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UTL 2000/3 (magic LAB®)</td>
<td>0.6</td>
<td>130</td>
<td>14,600</td>
<td>1.2</td>
<td>0.9</td>
<td>0.75 / 0.5</td>
</tr>
<tr>
<td>UTL 2000/04</td>
<td>1.5</td>
<td>350</td>
<td>7,900</td>
<td>3</td>
<td>1.5</td>
<td>1 / 0.75</td>
</tr>
<tr>
<td>UTL 2000/05</td>
<td>10</td>
<td>2,500</td>
<td>5,800</td>
<td>5</td>
<td>4</td>
<td>2 / 1.5</td>
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<tr>
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<td>8,000</td>
<td>4,200</td>
<td>10</td>
<td>7.5</td>
<td>2 / 2</td>
</tr>
<tr>
<td>UTL 2000/20</td>
<td>90</td>
<td>20,000</td>
<td>3,000</td>
<td>30</td>
<td>22</td>
<td>3 / 2.5</td>
</tr>
<tr>
<td>UTL 2000/30</td>
<td>175</td>
<td>40,000</td>
<td>1,500</td>
<td>50</td>
<td>37</td>
<td>6 / 4</td>
</tr>
<tr>
<td>UTL 2000/40</td>
<td>350</td>
<td>80,000</td>
<td>1,500</td>
<td>75</td>
<td>55</td>
<td>6 / 4</td>
</tr>
<tr>
<td>UTL 2000/50</td>
<td>550</td>
<td>125,000</td>
<td>1,100</td>
<td>150</td>
<td>110</td>
<td>8 / 6</td>
</tr>
</tbody>
</table>

* Flow rates can be +25% depending on fluid properties and auxiliary pumping. Consult IKA® for recommendation.
The DISPAX-REACTOR® is a high shear, three stage dispersing machine used 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 (pumping)

<table>
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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DR 2000/3 (magic LAB®)</td>
<td>0.3</td>
<td>80</td>
<td>14,600</td>
<td>4,500</td>
<td>1.2</td>
<td>0.9</td>
<td>0.75 / 0.5</td>
</tr>
<tr>
<td>DR 2000/4</td>
<td>1.5</td>
<td>350</td>
<td>7,900</td>
<td>4,500</td>
<td>3</td>
<td>1.5</td>
<td>1 / 0.75</td>
</tr>
<tr>
<td>DR 2000/5</td>
<td>10</td>
<td>2,500</td>
<td>5,800</td>
<td>4,500</td>
<td>7.5</td>
<td>5.5</td>
<td>2 / 1.5</td>
</tr>
<tr>
<td>DR 2000/10</td>
<td>35</td>
<td>8,000</td>
<td>4,200</td>
<td>4,500</td>
<td>20</td>
<td>15</td>
<td>2 / 2</td>
</tr>
<tr>
<td>DR 2000/20</td>
<td>90</td>
<td>20,000</td>
<td>3,000</td>
<td>4,500</td>
<td>50</td>
<td>37</td>
<td>3 / 2.5</td>
</tr>
<tr>
<td>DR 2000/30</td>
<td>175</td>
<td>40,000</td>
<td>1,500</td>
<td>4,500</td>
<td>75</td>
<td>55</td>
<td>6 / 4</td>
</tr>
<tr>
<td>DR 2000/40</td>
<td>350</td>
<td>80,000</td>
<td>1,500</td>
<td>4,500</td>
<td>125</td>
<td>75</td>
<td>6 / 4</td>
</tr>
<tr>
<td>DR 2000/50</td>
<td>550</td>
<td>125,000</td>
<td>1,200</td>
<td>4,500</td>
<td>200</td>
<td>160</td>
<td>8 / 6</td>
</tr>
</tbody>
</table>

* Flow rates can be +25% depending on fluid properties and auxiliary pumping. Consult IKA® for recommendation.
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 desired results. 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.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DRS 2000/05</td>
<td>3</td>
<td>700</td>
<td>10,500</td>
<td>7,900</td>
<td>40</td>
<td>10</td>
<td>5.5</td>
<td>2 / 1.5</td>
</tr>
<tr>
<td>DRS 2000/10</td>
<td>10</td>
<td>2,500</td>
<td>7,300</td>
<td>7,900</td>
<td>40</td>
<td>20</td>
<td>15</td>
<td>2 / 2</td>
</tr>
<tr>
<td>DRS 2000/20</td>
<td>30</td>
<td>7,000</td>
<td>4,900</td>
<td>7,900</td>
<td>40</td>
<td>50</td>
<td>37</td>
<td>3 / 2.5</td>
</tr>
<tr>
<td>DRS 2000/30</td>
<td>90</td>
<td>20,000</td>
<td>2,850</td>
<td>7,900</td>
<td>40</td>
<td>100</td>
<td>75</td>
<td>6 / 4</td>
</tr>
<tr>
<td>DRS 2000/50</td>
<td>175</td>
<td>40,000</td>
<td>2,000</td>
<td>7,900</td>
<td>40</td>
<td>200</td>
<td>16</td>
<td>8 / 6</td>
</tr>
</tbody>
</table>

*Flow rates can be +25% depending on fluid properties and auxiliary pumping. Consult IKA® for recommendation.
The colloid mill MK 2000 is especially used for wet milling, deagglomeration and for the production of viscous emulsions. The high tip speeds, combined with an extremely small shear gap, produces intense friction on the material being processed. The friction and shear that result is commonly referred to as wet milling. The rotor and stator are cone shaped, and have three stages of increasingly fine serrations, or grooves. The stator can be infinitely adjusted to obtain the desired gap setting between the rotor and stator.

The grooves change directions in each stage for increased turbulence. With high quality finishes and materials, the MK tool offers an extremely efficient milling geometry.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MK 2000/3 (magic LAB®)</td>
<td>0.9</td>
<td>200</td>
<td>14,600</td>
<td>4,500</td>
<td>23</td>
</tr>
<tr>
<td>MK 2000/4</td>
<td>1.5</td>
<td>300</td>
<td>7,900</td>
<td>4,500</td>
<td>23</td>
</tr>
<tr>
<td>MK 2000/5</td>
<td>10</td>
<td>2,500</td>
<td>5,800</td>
<td>4,500</td>
<td>23</td>
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<tr>
<td>MK 2000/10</td>
<td>35</td>
<td>7,500</td>
<td>4,200</td>
<td>4,500</td>
<td>23</td>
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<tr>
<td>MK 2000/20</td>
<td>90</td>
<td>20,000</td>
<td>3,000</td>
<td>4,500</td>
<td>23</td>
</tr>
<tr>
<td>MK 2000/30</td>
<td>175</td>
<td>40,000</td>
<td>1,500</td>
<td>4,500</td>
<td>23</td>
</tr>
<tr>
<td>MK 2000/50</td>
<td>350</td>
<td>80,000</td>
<td>1,500</td>
<td>4,500</td>
<td>23</td>
</tr>
</tbody>
</table>

* Flow rates are dependent of the gap setting and the material being processed. Flow rates can be reduced to as low as 10% of the maximum rating for difficult to process materials and near zero gap settings.
Another unique IKA® innovation, the cone mill MKO 2000 was designed to extend beyond the capabilities of the colloid mill. Given its innovative design, it is capable of wet milling and grinding, producing even smaller particle sizes than a colloid mill. The milling gap is infinitely adjustable so that exact amount of milling action can be obtained.

The surface of the milling tool is coated with an extremely hard coating that has a very rough surface texture. The coatings consist of high quality materials such as carbides and ceramics, and have different grain sizes. The milling tool produces an extremely intense shear zone that can process materials with high or low viscosities, but even finer distribution and particle sizes than a colloid mill.

<table>
<thead>
<tr>
<th>Type</th>
<th>Cone Mill®</th>
<th>Nominal flow rate* [gpm]</th>
<th>Output [rpm]</th>
<th>Nominal Tip Speed [fpm]</th>
<th>Motor power [Hp]</th>
<th>Inlet/Outlet [inches]</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKO 2000/3 (magic LAB®)</td>
<td>0.1</td>
<td>25</td>
<td>14,600</td>
<td>4,500</td>
<td>1.2</td>
<td>0.75 / 0.5</td>
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<tr>
<td>MKO 2000/04</td>
<td>0.04</td>
<td>10</td>
<td>7,900</td>
<td>4,500</td>
<td>3</td>
<td>1 / 0.75</td>
</tr>
<tr>
<td>MKO 2000/05</td>
<td>0.5</td>
<td>150</td>
<td>5,800</td>
<td>4,500</td>
<td>10</td>
<td>2 / 1.5</td>
</tr>
<tr>
<td>MKO 2000/10</td>
<td>2</td>
<td>500</td>
<td>4,200</td>
<td>4,500</td>
<td>20</td>
<td>2 / 2</td>
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<td>7</td>
<td>1,500</td>
<td>3,000</td>
<td>4,500</td>
<td>50</td>
<td>3 / 2.5</td>
</tr>
<tr>
<td>MKO 2000/30</td>
<td>15</td>
<td>3,000</td>
<td>1,500</td>
<td>4,500</td>
<td>100</td>
<td>6 / 4</td>
</tr>
<tr>
<td>MKO 2000/50</td>
<td>25</td>
<td>6,000</td>
<td>1,500</td>
<td>4,500</td>
<td>200</td>
<td>8 / 6</td>
</tr>
</tbody>
</table>

* Flow rates are dependent of the gap setting and the material being processed.
Flow rates can be reduced to as low as 10% of the maximum rating for difficult to process materials and near zero gap settings.
Corundum Disk Mill | MCD 2000

Applications

Fine milling of:
- Mustard
- Chili
- Spice pastes
- Nuts
- Almonds
- Sesame
- Cocoa
- Soybeans
- Fruits
- Vegetables
- Fish pastes

The corundum disk mills are used for wet milling of granular, viscous and pasty products. The corundum disks are available with different grain according to the required fineness. The axially movable stator is pressed against the rotor which runs at high speed. Due to the high shear forces, the product is finely milled between rotor and stator and then discharged through the lateral outlet of the milling chamber.

A cooling jacket, integrated in the milling chamber, prevents an excessive heating of the product.

Advantages

- Feeding module with funnel and auger
- Cooling jacket integrated in the housing
- Precise and reproducible milling gap adjustment
- Milling disks available in different grain sizes
- Separate bearing of the drive shaft
- Belt driven – vibration free and at low noise level
- Low installation height

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity [lb/hr]</th>
<th>Capacity [kg/h]</th>
<th>Motor power [Hp]</th>
<th>Motor power [kW]</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCD 2000/05</td>
<td>22 - 440</td>
<td>10 – 200</td>
<td>7.5</td>
<td>4</td>
</tr>
<tr>
<td>MCD 2000/10</td>
<td>55 - 1,100</td>
<td>25 – 500</td>
<td>10</td>
<td>7.5</td>
</tr>
<tr>
<td>MCD 2000/20</td>
<td>100 - 2,500</td>
<td>45 – 1,100</td>
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<td>11</td>
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<tr>
<td>MCD 2000/30</td>
<td>275 - 5,500</td>
<td>125 – 2,500</td>
<td>50</td>
<td>37</td>
</tr>
<tr>
<td>MCD 2000/50</td>
<td>440 - 10,000</td>
<td>200 – 4,500</td>
<td>100</td>
<td>75</td>
</tr>
</tbody>
</table>
The high shear mixing and dispersing machine DBI 2000 is designed for the batch operation with a recirculating loop. It is directly flange-connected to the vessel outlet with a big cross section and pumps the product back into the vessel. Due to its wide inlet and the double stage design, it is suitable for processing low up to high viscosity products. The DBI 2000 enables suction, pumping, dispersing and self-cleaning under CIP conditions.

This unique system combines a high flow circulation, an even particle size reduction and an effective homogenization. Solid and liquid additives are fed directly into the dispersion chamber, which prevents lump formation and promotes rapid processing.

The DBI 2000 can also be integrated in an existing system or process to replace inefficient machinery.

### Applications
- Sunscreens
- Beverages
- Ointments
- Mayonnaise, Dressings
- Paints and lacquers
- Starch solutions
- Grease

### Applications

| Applications          |  |
|-----------------------|  |
| Sunscreens            |  |
| Beverages             |  |
| Ointments             |  |
| Mayonnaise, Dressings |  |
| Paints and lacquers   |  |
| Starch solutions      |  |
| Grease                |  |

### Advantages

- Free selection; pumping only or additional high shear dispersing
- Direct feeding of solid and liquid additives
- Efficient dispersing with exchangeable tool designs
- No additional pumps required for product circulation, CIP and discharge
- The innovative design ensures shorter processing times and optimum dispersing quality

### Specifications

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>DBI 2000/03 (magic LAB®)</td>
<td>1.2</td>
<td>0.9</td>
<td>0 / 7</td>
<td>max. 1,500</td>
<td>10,000</td>
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<tr>
<td>DBI 2000/04 (PROCESS-PILOT)</td>
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<td>4</td>
<td>10 / 30</td>
<td>2,000 / 6,000</td>
<td>100,000</td>
</tr>
<tr>
<td>DBI 2000/05</td>
<td>10</td>
<td>7.5</td>
<td>20 / 70</td>
<td>5,000 / 15,000</td>
<td>100,000</td>
</tr>
<tr>
<td>DBI 2000/10</td>
<td>25</td>
<td>18.2</td>
<td>90 / 180</td>
<td>20,000 / 40,000</td>
<td>100,000</td>
</tr>
<tr>
<td>DBI 2000/20</td>
<td>50</td>
<td>37.5</td>
<td>200 / 350</td>
<td>45,000 / 80,000</td>
<td>100,000</td>
</tr>
</tbody>
</table>
Incorporating powders into liquids, without lumps and without dust, is an important part of many processes. The CMX 2000 utilizes a specially designed rotor that creates enormous suction to draw in solids, while it pumps the liquid at the same time. The liquid can then be re-circulated until all powders are incorporated.

Additional dispersing can be accomplished by continually re-circulating without adding more powder. Dispersing can then be continued with closed powder inlet. Depending on the product respective the powder characteristics, high solids concentrations can be achieved.
When production quantities require a continuous process, the MHD 2000 can get the job done. Solids and liquids are instantaneously mixed and dispersed in one step while maintaining a dust free environment. The MHD accurately combines the solid and liquid, and disperses them into a homogeneous, final product. Tanks and other auxiliary equipment can often be eliminated, saving capital and operating expenses. The MHD has a unique, patented design that doesn’t require suction to draw in the powders, which essentially eliminates aeration. The MHD offers the greatest flexibility in production, and offers maximum product consistency. The MHD can also run in recirculation mode as an enrichment process. The MHD prevents bridging and aeration. Scalability is ensured by maintaining a constant tip speed of 23 m/s throughout the product range.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal flow rate* [gpm]</th>
<th>Max Powder Feed Rates* [lb/hr]</th>
<th>Motor power [Hp]</th>
<th>Solid/Liquid - Inlet/Outlet [inches]</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHD 2000/3 (magic LAB®)</td>
<td>0.13</td>
<td>44</td>
<td>1.2</td>
<td>0.75 / 0.5 / 0.5</td>
</tr>
<tr>
<td>MHD 2000/04</td>
<td>1.25</td>
<td>220</td>
<td>3</td>
<td>2 / 0.75 / 0.75</td>
</tr>
<tr>
<td>MHD 2000/05</td>
<td>3</td>
<td>1,102</td>
<td>7.5</td>
<td>2.5 / 1 / 1.5</td>
</tr>
<tr>
<td>MHD 2000/10</td>
<td>10</td>
<td>2,866</td>
<td>20</td>
<td>3 / 1.5 / 2</td>
</tr>
<tr>
<td>MHD 2000/20</td>
<td>30</td>
<td>6,172</td>
<td>25</td>
<td>4 / 2 / 2.5</td>
</tr>
<tr>
<td>MHD 2000/30</td>
<td>90</td>
<td>18,739</td>
<td>50</td>
<td>8 / 3 / 4</td>
</tr>
<tr>
<td>MHD 2000/50</td>
<td>175</td>
<td>39,683</td>
<td>100</td>
<td>8 / 4 / 6</td>
</tr>
</tbody>
</table>
Batch Dispersing

IKA® is the world leader in the design and manufacturing of high shear mixers and systems. IKA® produces a full range of mixers from laboratory to production scale. Our high shear mixers and dispersers feature our proven rotor-stator designs that are used in thousands of chemical, food, pharmaceutical and cosmetic companies.

The machines are designed to withstand the most demanding applications while providing the ultimate flexibility for your application needs.

**Rotor-Stator System**
The best in dispersing technology
For several decades, the ULTRA-TURRAX® name has been synonymous with quality and reliability. The machines are used for the production of any kind of emulsions, suspensions and hydrocolloidal solutions. A variety of exchangeable generators (rotor + stator) enables further adaptations to the respective mixing task. Moreover, different types of seals allow different fitting positions as well as working under pressure up to 10 bar and with temperatures up to approximately 160 °C.

The models UTC, UTS and UTE mainly differ in regards to the peripheral design, the type of seal and assembly in the vessel. Nevertheless, the generators from these models are always the same so that the same mixing result is achieved. While the machine types UTC and UTS are designed for top entry, the UTE is mounted on the vessel bottom. Therefore, the UTE model is preferred in case of varying filling levels in the container.
Applications

- Lotions
- Waxes
- Polishing agents
- Gelling agents
- Dyes
- Polymer emulsions

* Depending on the product viscosity. Regular range 1 – 5,000 mPas.

** Higher Tip Speeds can be achieved with optional VFD Speed Controller on all UTC and UTS models.

<table>
<thead>
<tr>
<th>Type ULTRA TURRAX®</th>
<th>Batch size range* [gallons]</th>
<th>[liters]</th>
<th>Nominal Tip Speed [rpm @ 60Hz]</th>
<th>[m/s @ 60Hz]</th>
<th>Motor power [Hp @ 60Hz]</th>
<th>[kW @ 50Hz]</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTC 80</td>
<td>8 - 40</td>
<td>30 - 150</td>
<td>3,600</td>
<td>12</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>UTC/UTS 115</td>
<td>26 - 130</td>
<td>100 - 150</td>
<td>3,600</td>
<td>18</td>
<td>7.5</td>
<td>3</td>
</tr>
<tr>
<td>UTC/UTS 150</td>
<td>92 - 450</td>
<td>350 - 1,700</td>
<td>3,600</td>
<td>25</td>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>UTC 220</td>
<td>132 - 660</td>
<td>500 - 2,500</td>
<td>1,800</td>
<td>18</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>UTC/UTS 280</td>
<td>198 - 900</td>
<td>750 - 3,500</td>
<td>1,800</td>
<td>24</td>
<td>30</td>
<td>18.5</td>
</tr>
<tr>
<td>UTC 300</td>
<td>211 - 1,000</td>
<td>800 - 4,000</td>
<td>1,800</td>
<td>25</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>UTC 330</td>
<td>264 - 1,300</td>
<td>1,000 - 5,000</td>
<td>1,200</td>
<td>18</td>
<td>50</td>
<td>22</td>
</tr>
<tr>
<td>UTC 350</td>
<td>317 - 1,500</td>
<td>1,200 - 6,000</td>
<td>1,200</td>
<td>20</td>
<td>50</td>
<td>32</td>
</tr>
</tbody>
</table>

* Depending on the product viscosity. Regular range 1 – 5,000 mPas.
** Higher Tip Speeds can be achieved with optional VFD Speed Controller on all UTC and UTS models.
ULTRA TURRAX® | UTE - Bottom Entry

Applications

- Lotions
- Wax emulsions
- Resin solutions
- Gelling agents
- Shampoos, conditioners
- Rubber solutions

Applications

- Lotions
- Wax emulsions
- Resin solutions
- Gelling agents
- Shampoos, conditioners
- Rubber solutions

Advantages of the ULTRA-TURRAX® UTE:

- Prevents aeration
- Capable of operating under pressures of up to 16 bar
- CIP and SIP capable
- No shaft tube where materials can stick
- Machine can run at very low liquid levels
- Easily cleaned
- No bearings in the product

High Shear Batch Mixers - bottom & side entry

The ULTRA-TURRAX® UTE, for bottom or side mounting to vessels, is mainly used for applications with varying filling levels and when strong spouts and air inclusions have to be avoided. Suitable for operation with pressures from 0.1 up to 16 bar and temperatures from -40 °C to 160 °C.

<table>
<thead>
<tr>
<th>Type ULTRA TURRAX®</th>
<th>Batch size range*</th>
<th>Nominal Tip Speed</th>
<th>Motor power</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[gallons]</td>
<td>[liters]</td>
<td>[rpm @ 60Hz]</td>
</tr>
<tr>
<td>UTE 60</td>
<td>5 - 18</td>
<td>20 - 70</td>
<td>3,600</td>
</tr>
<tr>
<td>UTE 115</td>
<td>21 - 100</td>
<td>80 - 400</td>
<td>3,600</td>
</tr>
<tr>
<td>UTE 150</td>
<td>40 - 200</td>
<td>150 - 750</td>
<td>3,600</td>
</tr>
<tr>
<td>UTE 220</td>
<td>66 - 300</td>
<td>250 - 1,200</td>
<td>1,800</td>
</tr>
<tr>
<td>UTE 280</td>
<td>132 - 660</td>
<td>500 - 2,500</td>
<td>1,800</td>
</tr>
<tr>
<td>UTE 300</td>
<td>211 - 1,000</td>
<td>800 - 4,000</td>
<td>1,800</td>
</tr>
</tbody>
</table>

* Depending on the product viscosity. Regular range 1 – 5,000 mPas.

** Higher Tip Speeds can be achieved with optional VFD Speed Controller on all UTC and UTS models.
The IKA® ROTOTRON® RTS jet flow agitator is a universal overhead stirrer. RTS-type machines are used for homogenizing, dispersing, suspending, emulsifying, de-areation and dissolving. The jet flow agitator is characterized by its high level of efficiency, intensively circulating and mixing products while consuming little energy.

The ROTOTRON® RTS is suitable for top entry and submerged mounting into large vessels. For many applications, it replaces the use of conventional agitators with extremely long shafts. The IKA® ROTOTRON® RTS can be used to process media up to a viscosity of 15,000 mPas. Depending on the application, the rotary direction is changeable. In order to prevent sedimentation and floating ingredients, the flow direction is downwards. For the treatment of high viscosities and to avoid air incorporation, the rotary direction can be changed, thus resulting in an upwards flow.

### Applications
- **Food industry**: Ice cream, chocolate, flavorings, drinks
- **Paint and dye industry**: Inks, watercolors
- **Paper industry**: Adhesives, Pulp
- **Chemical industry**: Dyes, fertilizers, pesticides

### Advantages of the ROTOTRON® RTS:
- Rapid mixing and dispersing results
- Completely homogeneous mixing of the product in all areas of the container, even for critical shapes
- Energy efficient
- No rotation of the mixture, flow breakers are not required
- Whirlpool effects and air inclusions are prevented
- Flexible installation options in containers with a wide variety of shapes
- No seal in the product
- Exchangeable mixing heads available

### Optional Design

### Applications
- **Food industry**: Ice cream, chocolate, flavorings, drinks
- **Paint and dye industry**: Inks, watercolors
- **Paper industry**: Adhesives, Pulp
- **Chemical industry**: Dyes, fertilizers, pesticides

### Type ROTOTRON® Batch size max (H₂O)* Nominal Speed Motor power
<table>
<thead>
<tr>
<th>Type</th>
<th>ROTOTRON®</th>
<th>Batch size (gallons)</th>
<th>Batch size (liters)</th>
<th>Nominal Speed (rpm @ 60Hz)</th>
<th>Motor power [Hp @ 60Hz]</th>
<th>Motor power [kW @ 50Hz]</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTS 115</td>
<td>264</td>
<td>1,000</td>
<td>3,600</td>
<td>3</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>RTS 150</td>
<td>1,321</td>
<td>5,000</td>
<td>3,600</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>RTS 220</td>
<td>2,641</td>
<td>10,000</td>
<td>1,800</td>
<td>7.5</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>RTS 280</td>
<td>5,283</td>
<td>20,000</td>
<td>1,800</td>
<td>20</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>
A complete line of stands are available for all IKA® stirrers and ULTRA-TURRAX® batch machines. Lifting and lowering can be done with either a manual hydraulic pump, or an electo-hydraulic pump for automatic operation. The stands may also be equipped with a swivel bracket for angle adjustment of the mixer.

An optional vessel clamp is also available. Other options are available, including materials of construction and electrical controls. The lifting height of the stand can be specified according to the requirements. Stainless steel versions with high quality surface finishes are available for the food and pharmaceutical industries.
IKA® processing plants can be used for the production of solutions, emulsions and suspensions in many applications. Thanks to the advanced design, they can handle products that range from low viscosity up to a pasty condition.

Flexible and easy to customize to the specific application, our plant systems can be used e.g. for cosmetic creams and lotions in the cosmetic and pharmaceutical industry, for mayonnaise or dressings in the food industry, for suspensions and emulsions in the chemical industry as well as for production of paints and lacquers.

Based on our long experience with many applications, IKA® is your competent partner for processing plants. In order to select the best configuration for your specific application, our test facility is staffed with experienced application engineers. It is equipped with a wide range of laboratory and pilot equipment to qualify the appropriate equipment to meet your application needs.
When new products are developed, the processes are initially tested in pilot plants. Small scale trials are also used to confirm changes in recipes or ingredients. Through the use of identical plant design and dispersion parameters, IKA® plant systems ensure a reliable scale-up with a constant product quality.
IKA® pilots allow you to:

> Choose the process technology to be used
> Define the required machine and system size
> Establish the necessary energy requirements
> Determine the required quality and volume of the raw materials
> Calculate and define the quality standard of the final product
> Determine the flow rate or batch times of the industrial system

**IKA® magic LAB® 2000/03**
The magic LAB® is a modular laboratory mixing system that gives the user the ability to test a wide variety of applications on a laboratory scale. Using seven different, interchangeable mixing tools and variable speed control, the entire scope of processing with rotor-stator systems can be tested.

**IKA® magic LAB® XP**
The magic LAB® XP is an upgraded version of the standard magic LAB®, built to handle applications with one or more of the following requirements;
> Higher pressure / high vacuum
> Abrasive or non-lubricating products
> High power requirements

---

**Technical data**

<table>
<thead>
<tr>
<th></th>
<th>magic LAB® 2000/03</th>
<th>magic LAB® XP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply [V]</td>
<td>single phase, 220 – 240</td>
<td>3 phase, 230 – 460</td>
</tr>
<tr>
<td>Motor power [kW]</td>
<td>0.9</td>
<td>3</td>
</tr>
<tr>
<td>Temperature long / short time operation [°C]</td>
<td>80/120</td>
<td>120</td>
</tr>
<tr>
<td>Max. process vacuum/pressure [bar]</td>
<td>-0.5 / 2.5</td>
<td>-1 / 7</td>
</tr>
<tr>
<td>Standard rotational speed [rpm]</td>
<td>14,600</td>
<td>14,600</td>
</tr>
<tr>
<td>Circumferential speed [m/s]**</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Flow capacity** [l/h]</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Dimensions basic machine (W x D x H) [mm]</td>
<td>170 x 270 x 215</td>
<td>450 x 250 x 930</td>
</tr>
<tr>
<td>Weight basic machine [kg]</td>
<td>7</td>
<td>48</td>
</tr>
<tr>
<td>Dimensions transport box (W x D x H) [mm]</td>
<td>350 x 460 x 560</td>
<td>--</td>
</tr>
<tr>
<td>Weight basic machine in transport box [kg]</td>
<td>20</td>
<td>--</td>
</tr>
</tbody>
</table>

** Speed 14,600 rpm, module UTL, 4 M, H₂O
**IKA® LABOR-PILOT 2000/04**

Modular inline dispersing machine in pilot scale with scale-up possibilities to production scale. Drive with three phase asynchronous motor with V-belt drive.

**IKA® PROCESS-PILOT 2000/04**

Inline dispersing machine in pilot scale; suitable for working under vacuum / pressure and at elevated temperatures. The machine is equipped with a double mechanical seal and lubrication system.

<table>
<thead>
<tr>
<th>Technical data</th>
<th>LABOR-PILOT 2000/04</th>
<th>PROCESS-PILOT 2000/04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply [V]</td>
<td>3 phase 230 – 460</td>
<td>3 phase 230 – 460</td>
</tr>
<tr>
<td>Motor power [hp]</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Max. admissible temperature [°C]</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Max. process vacuum/pressure [bar]</td>
<td>-0.5 / 3</td>
<td>-1 / 16</td>
</tr>
<tr>
<td>Rotational speed [rpm]</td>
<td>7,900</td>
<td>7,900</td>
</tr>
<tr>
<td>Circumferential speed [m/s]</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Flow capacity [l/h]*</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Dimensions (W x D x H) [mm]</td>
<td>450 x 250 x 350</td>
<td>450 x 250 x 900</td>
</tr>
<tr>
<td>Weight [kg]</td>
<td>36</td>
<td>53</td>
</tr>
</tbody>
</table>

*Module UTL, 4 M, H₂O

**Module ULTRA-TURRAX® UTL**

Single-stage high shear mixer used for homogenizing emulsions and suspensions.

**Module DISPAX-REACTOR® DR**

Three-stage disperser for applications with high shear requirements.

**Module Colloid / Cone mill MK / MKO**

Wet-milling and emulsification by means of spiral gearing milling tool. Emulsification (MK) and Deagglomeration (MKO) of viscous products.

**Module CMX**

Lump- and dust free processing of powders and granules.

**Module MHD**

Continuous inline proportional incorporation of powders into liquids in a single pass.

**Module DBI**

2-stage dispersing and pumping of solids and liquids.
IKA® introduces the next generation of laboratory scale processing plants. The perfect simulation of our batch mixing systems with the smallest sample amounts.

The magic PLANT is the ideal laboratory scale process plant. It is specifically designed to test process and product conditions in an accurate small-scale simulation. Once a satisfactory product is obtained in the pilot scale, the next step is to transfer the manufacturing process to full-scale production. The magic PLANT system can be adapted to a wide range of applications and meet specific requirements, especially in the food, cosmetic, chemical and pharmaceutical industries.

**Advantages**

> Modular design with exchangeable tools
> Process simulation in smallest scale
> Suitability for wet and dry products

**magic PLANT | The most versatile laboratory reactor**

This system is used for batch mixing, homogenizing, emulsifying, suspending and for powder mixing and drying. The magic PLANT delivers a seamless process transition from product development to production in capacities of up to 2 liters.

**Technical data**

**magic PLANT**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful volume [l]</td>
<td>2</td>
</tr>
<tr>
<td>Working pressure [bar]</td>
<td>-1 up to 2.5 (optionally 5 bar)</td>
</tr>
<tr>
<td>Max. temperature in the vessel [°C]</td>
<td>150</td>
</tr>
<tr>
<td>Dimensions (L x W x H) [mm]</td>
<td>430 x 520 x 670</td>
</tr>
<tr>
<td>Voltage [V]</td>
<td>single phase 100 - 120</td>
</tr>
<tr>
<td>Viscosity [mPas]*</td>
<td>1 – 100,000</td>
</tr>
</tbody>
</table>

**Agitator**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed [rpm]</td>
<td>0 – 2,000 rpm</td>
</tr>
<tr>
<td>Stirring tools</td>
<td>anchor, propeller, spiral agitator for drying, flow breaker</td>
</tr>
<tr>
<td>Motor power [W]</td>
<td>400</td>
</tr>
</tbody>
</table>

**Disperser T 25 (optional)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor power [W]</td>
<td>500</td>
</tr>
<tr>
<td>Speed [rpm]</td>
<td>3,400 – 24,000</td>
</tr>
</tbody>
</table>

* Depending on execution and product properties.
The IKA® magic PLANT is an extremely versatile and multi-functional process plant. Depending on the application, this unit can easily be modified into three different configurations:

**magic PLANT basic**
- Adjustable speed drive for optimal agitating of pure liquids or suspensions
- Tilttable, double jacketed and insulated vessel
- Exchangeable stirring tools
- Optional ULTRA-TURRAX® T 25 batch disperser
- High pressure and full vacuum operation

**magic PLANT inline**
- In combination with high shear inline disperser magic LAB® for high quality emulsions and suspensions
- Recirculation loop with manual 3-way valve for circulation or product discharge
- Modular processing head for the simulation of various dispersing methods
- Adjustable tip speed up to 40 m/s to achieve the smallest particle sizes

**magic PLANT powder**
- Efficient and gentle mixing or drying of free flowing solids
- Special powder agitator
- Inclined working position for better mixing and drying results
- Discharge by complete tilting of the vessel
The IKA® Standard Production Plant is a state-of-the-art, yet cost-efficient mixing system for all basic operations requiring mixing and dispersion technology.

The IKA® Standard Production Plant is available in eight sizes for volumes ranging from 25 to 4,000 liters.

- **Vessel Cover**
  The Standard Production Plant is available with a tilting device for the vessel cover. The smaller plant sizes; SPP 25 - SPP 250, are manually operated. The larger sizes are equipped with an electrical spindle drive to facilitate the easy opening of the cover.

- **Funnel**
  for the incorporation of solid and liquid ingredients

- **Mixing Vessel**
  The unique conical shape of the vessel bottom ensures a complete discharge — even for highly viscous products.

- **Recirculation Loop**
  Large dimensioned pipeline with 2-way butterfly valves and clamp connections

- **Dispersing machine**
  High capacity dispersing machine guarantees high-quality and stable emulsions and suspensions.
## Technical data

<table>
<thead>
<tr>
<th>Standard Production Plant</th>
<th>SPP 25</th>
<th>SPP 50</th>
<th>SPP 100</th>
<th>SPP 250</th>
<th>SPP 500</th>
<th>SPP 1000</th>
<th>SPP 2000</th>
<th>SPP 4000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total connected load [kW]</strong></td>
<td>5</td>
<td>6</td>
<td>9</td>
<td>10</td>
<td>23</td>
<td>25</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td><strong>Mixing vessel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. useable volume [l]</td>
<td>8</td>
<td>15</td>
<td>30</td>
<td>75</td>
<td>150</td>
<td>300</td>
<td>600</td>
<td>1,200</td>
</tr>
<tr>
<td>Max. useable volume [l]</td>
<td>25</td>
<td>50</td>
<td>100</td>
<td>250</td>
<td>500</td>
<td>1,000</td>
<td>2,000</td>
<td>4,000</td>
</tr>
<tr>
<td><strong>Dimensions (agitator)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height (closed cover) [mm]</td>
<td>1,350</td>
<td>1,480</td>
<td>1,720</td>
<td>2,000</td>
<td>2,670</td>
<td>3,050</td>
<td>3,635</td>
<td>4,260</td>
</tr>
<tr>
<td>Height (open cover) [mm]</td>
<td>1,520</td>
<td>1,695</td>
<td>1,990</td>
<td>2,460</td>
<td>3,085</td>
<td>3,760</td>
<td>4,500</td>
<td>–</td>
</tr>
<tr>
<td>Width (open cover) [mm]</td>
<td>1,070</td>
<td>1,220</td>
<td>1,370</td>
<td>1,705</td>
<td>2,080</td>
<td>2,935</td>
<td>3,500</td>
<td>2,600</td>
</tr>
<tr>
<td>Depth [mm]</td>
<td>800</td>
<td>860</td>
<td>1,080</td>
<td>1,250</td>
<td>1,350</td>
<td>1,765</td>
<td>2,200</td>
<td>2,600</td>
</tr>
</tbody>
</table>

- Speed adjustment
- Food Grade
- Clean in Place (CIP)
- Pharma Execution
- Explosion proof

> Small minimum capacity
> Low installation height
> Flexible configuration
> Counter-rotating agitator for the highest viscosities, the inner agitator can be heated/cooled

> The complete plant can be steamed in place (SIP)

> CIP-cleaning, for which the DBI 2000 serves as pump and feeds the rotating spray nozzles

Rotary Union
for the heating / cooling medium to the spiral or counter-rotating agitator.

Optional spiral agitator
for the main focus on the temperature control

Movable scraper
counter-rotating agitator with scraper

System Design
completely enclosed in stainless steel

Human-machine-interface (HMI)
with touch-screen monitor

Funnel
for incorporation of solids and liquids

Dispersing Machine
High capacity 2-stage dispersing machine; functions as CIP and discharge pump.
### Technical data

<table>
<thead>
<tr>
<th>Master Plant</th>
<th>MP 10</th>
<th>MP 25</th>
<th>MP 50</th>
<th>MP 100</th>
<th>MP 200</th>
<th>MP 500</th>
<th>MP 1000</th>
<th>MP 2000</th>
<th>MP 4000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total connected load [kW]</strong></td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>12</td>
<td>13</td>
<td>31</td>
<td>35</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td><strong>Mixing vessel [l]</strong></td>
<td>13</td>
<td>32</td>
<td>65</td>
<td>130</td>
<td>260</td>
<td>650</td>
<td>1,350</td>
<td>2,600</td>
<td>5,200</td>
</tr>
<tr>
<td><strong>Useful volume [l]</strong></td>
<td>10</td>
<td>25</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>500</td>
<td>1,000</td>
<td>2,000</td>
<td>4,000</td>
</tr>
<tr>
<td><strong>Working pressure in the vessel [bar]</strong></td>
<td>-1 to 2.5</td>
<td>-1 to 2.5</td>
<td>-1 to 2.5</td>
<td>-1 to 2.5</td>
<td>-1 to 2.5</td>
<td>-1 to 2.5</td>
<td>-1 to 2.5</td>
<td>-1 to 2.5</td>
<td>-1 to 2.5</td>
</tr>
<tr>
<td><strong>Max. temperature in the vessel [°C]</strong></td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td><strong>Dimensions (counter-rotating agitator)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height (closed cover) [mm]</td>
<td>1,065</td>
<td>1,637</td>
<td>1,817</td>
<td>2,305</td>
<td>2,421</td>
<td>3,315</td>
<td>3,749</td>
<td>4,951</td>
<td>5,425</td>
</tr>
<tr>
<td>Height (open cover) [mm]</td>
<td>1,515</td>
<td>2,086</td>
<td>2,417</td>
<td>2,950</td>
<td>3,376</td>
<td>4,615</td>
<td>5,499</td>
<td>7,051</td>
<td>7,865</td>
</tr>
<tr>
<td>Width [mm]</td>
<td>635</td>
<td>850</td>
<td>850</td>
<td>1,215</td>
<td>1,215</td>
<td>1,650</td>
<td>1,650</td>
<td>2,210</td>
<td>2,210</td>
</tr>
<tr>
<td>Depth [mm]</td>
<td>661</td>
<td>1,010</td>
<td>1,010</td>
<td>1,407</td>
<td>1,407</td>
<td>1,900</td>
<td>1,900</td>
<td>2,710</td>
<td>2,710</td>
</tr>
</tbody>
</table>

### Additional Features
- **Speed adjustment**
- **Food Execution**
- **Clean in Place**
- **Pharma Execution**
- **Steam in Place**
- **Explosion proof**
Dilution Plants
For highly efficient and economical production

Details can be found in our product brochures or online at www.ikausa.com

Vacuum Drying and Mixing

IKA® Laboratory & Analytical Technology

IKA® is indisputably ranked first world-wide for laboratory technology. Numerous innovations prove the increasing dynamics of the company.

Magnetic stirrers, overhead stirrers, dispersers, shakers, mills, rotary evaporators, calorimeters, and laboratory reactors complete the IKA® laboratory and analytical equipment portfolio.
Dry Milling
Impact and cutting mill for dry products | Pilotina
Deagglomeration of solids | CONIKA

Kneading
Vertical, horizontal and continuous kneading

High Pressure Homogenizer
For applications with particle size requirements in the nano range
From the initial planning stages to final product realization, IKA® technology and services is with you each step of the way by offering a multitude of services:

> Designing complete production plants
> Performing test runs when developing new products
> Planning and implementation of mechanical, electrical and pneumatic installations
> Commissioning, including a test processing and training the operating personnel
> Qualification

After project completion, our experienced engineers, electricians, chemists, application technicians and assemblers will be available to assist you with:

> Technical advice for questions concerning operation, process and maintenance of IKA® machines and plants
> Spare parts service
> Repair service
> Modification
> Upgrading
Qualification

IKA® machines and units are designed to be suitable for use in the pharmaceutical industry.

According to GMP guidelines, pharmaceutical companies are required to validate processes that influence product quality. The applied machines and plants are subjected to a severe qualification process. During this qualification it is tested and documented that the pre-specified functionality is achieved. As early as in the planning stages, IKA® machines and units are designed to be suitable for use in the pharmaceutical industry. IKA® will provide the necessary documentation and, if desired, will conduct the design, installation and operation qualification together with you.

Test Center | From Idea to Solution

The IKA® pilot plant station consists of a vast array of different machines and plants as well as measuring and analytical devices. The pilot plant trials have influenced the concept and design of many of our machines and their tooling.

Searching for a suitable machine for your application? In the IKA® pilot plant station you can test several mixing systems with a variety of tools. Our processing engineers look forward to assisting and advising you during and after the trials. This way, an optimal solution for your specific mixing task can be determined.