

# IKA

designed to work perfectly



COMPACT MIXING AND DISPERSING PLANT  
IKA XPP

## XPP

### /// Compact mixing and dispersing plant

**The production of homogeneous products, particularly those with a large proportion of solids for short batch times – that is the aim of the XPP plant. The IKA XPP is a modern, extremely powerful, yet cost-effective plant with that something extra.**

All of the basic operations involved in mixing and dispersing technology can be easily performed using the plant. It is ideally suited for the incorporation of large volumes of powdery solids and liquid additives into a liquid solution, quickly and homogeneously. The CMX high-efficiency inline mixer, mounted on the base of the compact plant, can be used to generate very high shear forces, if required. This makes the XPP the right plant for all situations, for use in a wide range of cosmetic and chemical industries to produce emulsions, suspensions, and solutions.

The XPP mixer is based on the same technology as our pilot plants. This allows us to offer a seamless scale-up from the laboratory to production conditions. An optional ATEX version, integrated CIP cleaning, the capacity for temperature control, a wide range of accessories and a very compact design characterize the important benefits of the XPP plant. It is available in 7 sizes, with a capacity ranging from 50 to 4,000 liters, and is designed for versatile processes and applications, even at high viscosities.

As a global company with more than 100 years of history, we are true experts when it comes to solid-liquid mixing technology. A multi-award-winning innovation leader, we incorporate our know-how into our products. See for yourself!



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## The main components

/// Intelligent technology for first-class processes

The IKA XPP is one of the most efficient compact plants on the market. Because of its special compact design and very low height, it can also be used in tight spaces. The integrated powerful inline mixer CMX is located eccentrically, directly below the vessel of the XPP. This means that the powder feeds can be directly connected to the CMX.

The ideal short pipework length ensures the lowest of pressure losses on the fluid side, thus ensuring safe operation, even with increasing viscosity levels, while at the same time minimizing residual volumes. This also means that the plant can be used over a very wide range of viscosities, without the need for additional units, such as pumps. The CMX disperser can deliver at a high flow rate and can also supply a high pressure to the optional CIP nozzles, for cleaning purposes. The clear concept and the use of tried-and-tested machine components ensure ease of operation, the shortest possible process times and excellent, consistent mixing quality.





① **Anchor stirrer with baffle**

The stirrer covers the entire effective volume of the vessel and promotes the homogenization of the product contents. The movable plastic strippers that are connected in an innovative way to the stirrer, without any additional components, ensure optimum heat transfer between the product and the walls of the vessel, particularly at higher viscosities. During the process, they keep the inside of the vessel free from deposits and, as a special feature, support the complete delivery of viscous products, together with a special stirring function.

② **Mixer vessel with a flat base**

Facilitates efficient product delivery.  
Reliable lid lock with clamping ring.

③ **Large-dimensioned pipework**

The circulation of the product in the circulation line can be adapted to suit the batch size and each step in the process (mini or maxi batch) via the valve setting.

④ **Integrated frame designed as a complete compact unit**

Thanks to its compact low height, the XPP can be operated in a comfortable posture, without the need for additional platforms. Smooth external surface for ease of cleaning. Removable cladding panels provide easy access for maintenance, for example.

⑤ **The miracle multi-functional disperser**

The integrated CMX inline mixer is located directly under the vessel. The CMX disperses the solid and liquid components, homogeneously and free from agglomerates, in the most efficient manner. Circulation of the solution in the vessel generates a negative pressure, which reliably draws in fluid, paste-like or solid additives, such as powders and fine granulates.

## XPP and practical accessories

/// The perfect peripheral devices for your process



### Functional solid feeder systems for many different requirements:

Whether it be Big Bag stations for the feeding of large volumes of solids, or sack chutes and suction lances for manual operation with small batch sizes: the most varied of solid systems can be connected to the XPP, directly and easily.



### Large hopper for manual filling

**of solids:** Ideal for a large number of various different additives. The strong negative pressure in the CMX easily draws the powder directly into the dispersing chamber, thus preventing lumps from forming at the outset.



#### Tilting lid for easy access to the vessel and the stirrer.

Safe lowering of the lid is ensured by the use of a two-hand operation with an acoustic signal. The lid contains all of the connections required for the process and the safety devices, together with a sight-glass and a light for observing the process.



#### The control system and its intuitive operation

is supplemented by a very clear and operator-friendly touch display, providing the interface between man and machine. The process is visualized here, and as an option, it is also possible to manage the recipes.



#### CIP spray nozzles in the lid

Thorough cleaning of the vessel by several CIP spray nozzles in the lid, which are supplied at a high pressure and high throughput by the CMX.

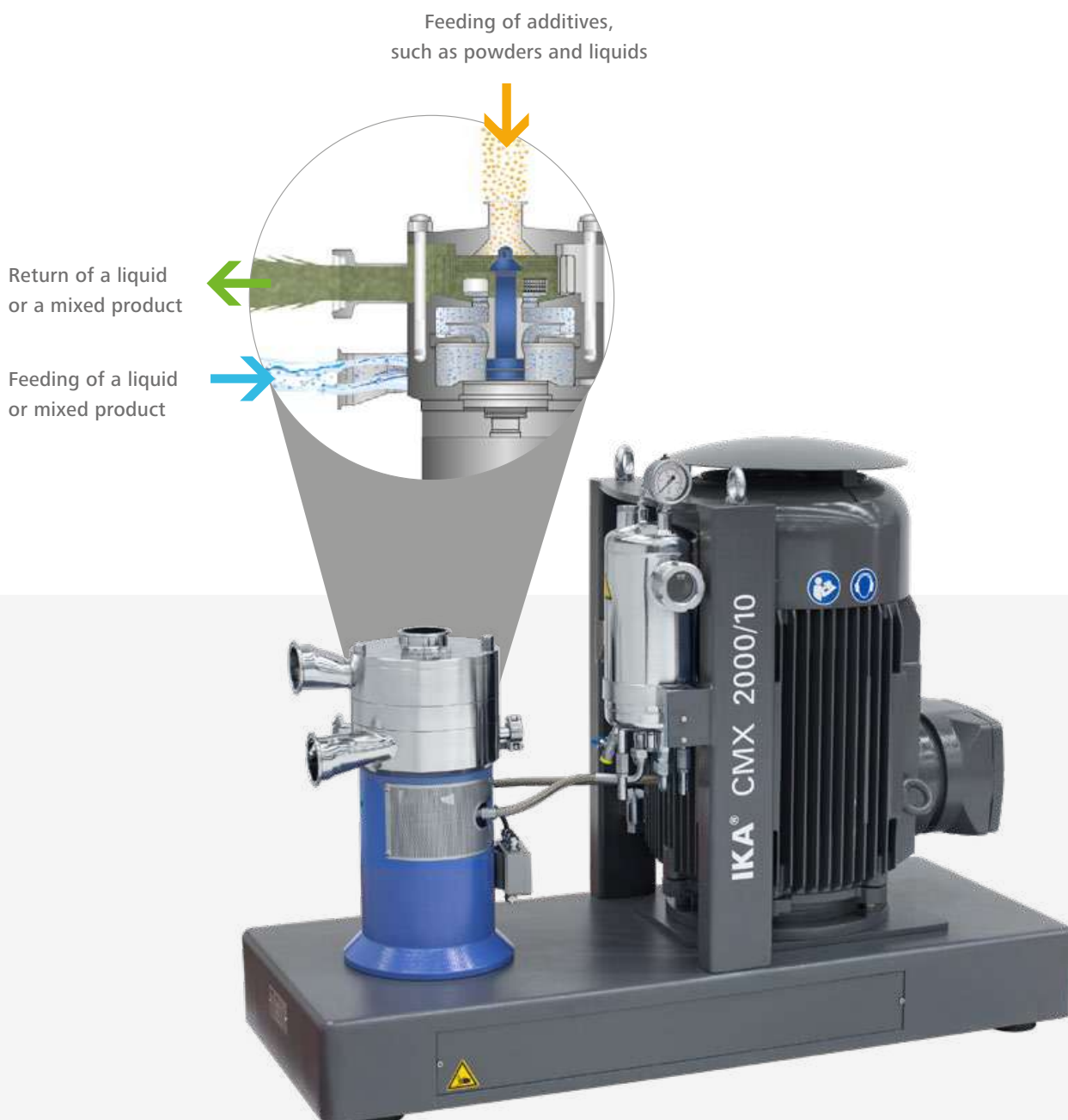
**Customer-specific special solutions are our expertise:** If required, additional vessels for additives or a downstream filling system can be connected to the XPP, for example, and special versions of stirrers are also available. An ATEX version can also be provided for Ex applications. We are happy to help!



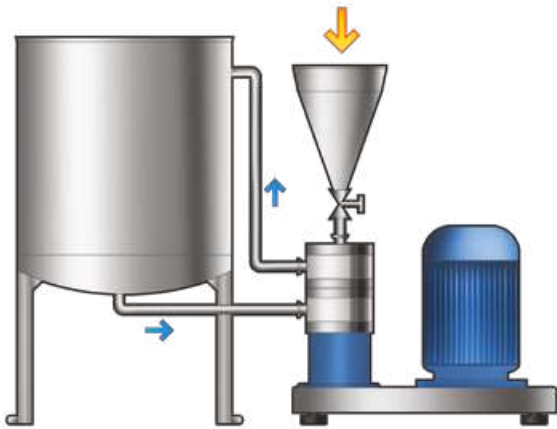
## CMX inline disperser

/// High-turbulence solid-liquid mixing

The core element of the XPP plant is the integrated CMX inline disperser. With its two dispersing stages, the CMX guarantees quick and homogeneous incorporation of additives into liquids. The positioning of the CMX directly on the vessel means that piping can be kept short. The CMX stands out with its constant output and functions, even at increasing viscosity levels.







### Method of operation of the CMX

The CMX is operated using the recirculation process. The circulation of the vessel contents at a high throughput generates negative pressure in the mixing chamber, which is used to draw in the additives. Various different tools can be provided to adapt to the product and the purpose of the process, in two stages of dispersion. The speed of the machine is an additional process parameter. Robust functionality is guaranteed by the multi-stage design, even at high viscosities – without the need for additional pumps! This characteristic of the CMX is unique in the field of mixing technology. The high circulation power of the CMX means that it also serves as an integrated pump for CIP cleaning, and for the discharge or transfer of the vessel contents.



The CMX solid-liquid mixing system is available as an individual machine, and it can also be integrated into customer-specific IKA plants.

## Technical Data

/// XPP and CMX overview

CHARACTERISTIC	[Dimension]	XPP 50	XPP 100
Effective volume	[l]	50	100
Temperature range	[°C]	-10 / +150	-10 / +150
Vacuum / pressure	[bar g]	-1 / +2,5	-1 / +2,5
Newton viscosity	[mPas]	1 – 5000	1 – 10 000
Shear-thinning viscosity	[mPas]	max. 50 000	max. 100 000
Stirrer	[Type]	Anchor	Anchor
Stirrer motor power rating	[kW]	0,55	0,75
Dimensions when closed (LxWxH)	[mm x mm x mm]	1200 x 850 x 1350	1450 x 950 x 1650
Height when open	[mm]	1600	2000
Weight	[kg]	500	980
<b>INLINE DRAW-IN DISPERSER</b>		<b>CMX 2000/04</b>	<b>CMX 2000/05*</b>
Disperser motor – Max. power rating	[kW]	4	11
Liquid circulation flow rate**	[m <sup>3</sup> /h]	5	12
Suction capacity of the hopper*** Bulk density approx. 0.1 kg/dm <sup>3</sup>	[kg/h]	210	330
Suction capacity of the hopper*** Bulk density approx. 0.7 kg/dm <sup>3</sup>	[kg/h]	2300	4500
Hopper size recommendation	[l]	≥ 10	≥ 25

\* An optional smaller sized CMX is available

\*\* Throughput based on water at the nominal speed

\*\*\* Maximum power rating with fine powders in water

XPP 200	XPP 500	XPP 1000	XPP 2000	XPP 4000
200	500	1000	2000	4000
-10 / +150	-10 / +150	-10 / +150	-10 / +150	-10 / +150
-1 / +2,5	-1 / +2,5	-1 / +2,5	-1 / +2,5	-1 / +2,5
1 – 10 000	1 – 10 000	1 – 10 000	1 – 10 000	1 – 10 000
max. 100 000	max. 100 000	max. 100 000	max. 100 000	max. 100 000
Anchor	Anchor	Anchor	Anchor	Anchor
1,1	1,5	3	4	7,5
1580 x 1100 x 1814	1900 x 1400 x 2450	2300 x 1810 x 2900	3100 x 2600 x 3600	3500 x 3000 x 4200
2206	2900	3500	4500	5500
1.200	2150	3800	5400	9600
CMX 2000/05	CMX 2000/10*	CMX 2000/20*	CMX 2000/30*	CMX 2000/50*
15	30	55	110	200
17	32	65	120	230
450	1200	2800	5000	8000
6300	15700	24000	38000	70000
≥ 50	≥ 100	≥ 200	≥ 500	≥ 1000

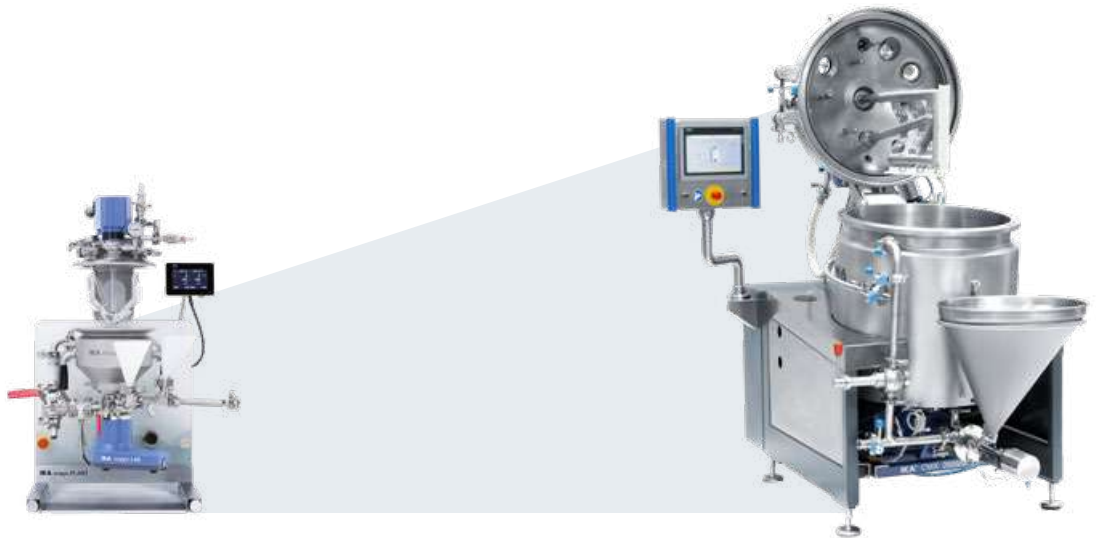


## Scale-up

/// One technology, from the laboratory to production

As a provider of laboratory, analytical and process technology, IKA offers a broad spectrum of devices, machines and plants, ranging from laboratory dispersers with 200 ml capacities up to highly-complex production plants with capacities of several thousands of liters. The ability to transition product manufacturing from laboratory to production (Scale-Up) and production to laboratory (Scale-Down) is a specialty of IKA and has been at the heart of our organization for decades!

The magic PLANT inline laboratory plant has been developed to create product recipes and to identify process requirements. It is capable of homogenizing, emulsifying, dissolving and dispersing products over a wide range of viscosities. This makes it the ultimate simulation of an IKA process plant: the recipes that you create using the magic PLANT inline can be manufactured in the same process, thanks to the consistent installation concept using Scale-Up. As an alternative, the application can be simulated in Scale-Down, to determine the changes in process parameters or the content materials, initially on a small scale, without the expenditure of large volumes of product.



magic PLANT inline

XPP

# XPP

/// The all-purpose solution for high-viscosity products

The particular achievement of the XPP compact mixing and dispersing machine is the manufacture of homogeneous mixtures with a high solid content. This advantage can be of benefit for many products in various different sectors.

Depending on its equipment level, the XPP can be used for the manufacture of paints and lacquers in the chemical industry, and for the manufacture of toothpaste and creams in the cosmetic industry.

## Paints + lacquers

- > Wall paints
- > Functional coatings
- > Printing inks
- > Pigment dispersions
- > Art paints
- > Inks for ink roller-ball pens
- > Thixotropic agents



## Electronics

- > Electrode coatings
- > Binder solutions
- > PCB coatings



## Food

- > Hydro-colloids / thickening agents
- > Protein drinks
- > Highly concentrated sugar solutions
- > Cold-swelling starches
- > Egg nog
- > Fruit fillings
- > Mayonnaise



## Cosmetics

- > Skin creams
- > Sunscreens + lotions
- > Toothpaste
- > Liquid soap
- > Hair gel



## Chemicals

- > Adhesives
- > Coating masses
- > Sealers
- > Antifreeze agents
- > Cleaning agents
- > Polymer solutions
- > Flame protection agents
- > Activated charcoal



## Pharmaceuticals

- > Saline solutions
- > Tablet coating masses
- > Cough syrup
- > Skin gel
- > Disinfectants





## Service

/// First class quality from the initial contact to production

**From the initial steps in planning to final product realization, the IKA technical and service departments are at your side and offer a wide range of services:**

- > Design of entire production plants
- > Performing of test runs for the development of new products
- > Planning and implementation of mechanical, electrical and pneumatic installations
- > Commissioning, including test runs and training of operating personnel
- > Qualification

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

- > Technical consulting related to operation, process flows and IKA machine and plant maintenance
- > Spare parts service
- > Repair service
- > Modification and upgrading



## Qualification

/// For the pharmaceutical sector and other industries

In accordance with GMP directives, pharmaceutical companies are obligated to validate quality-related processes. The machines and plants being used must be subjected to a strict qualification process. In the course of this qualification, we check and document that the stipulated functionality has been achieved. As early as the planning phase, IKA machines and plants are designed so that they are suitable for use in the pharmaceutical industry.

IKA provides the necessary documents and, if necessary, also carries out the design, installation and operational qualification, together with you.

## Test Center

/// From your idea to a solution

There is a wide spectrum of different machines and plants, as well as measuring and analytical equipment available at the IKA Test Center. The technical trials have some influence on the conception and design of many machines and their tools.

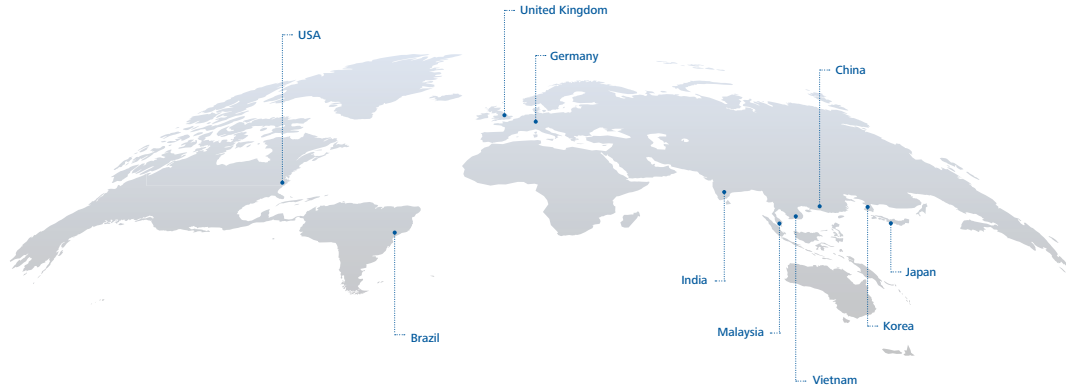
Are you searching for the right machine for your application?

At the IKA Test Center, we can test a number of mixing systems, using a variety of different tools. Our process engineers are happy to advise you when running trials and to support you. This way an optimal solution for your specific mixing task can be determined.





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