IKA

designed to work perfectly

EN

CMX - UNIVERSAL SOLID-LIQUID MIXING SYSTEM

INLINE MULTI-LEVEL FEEDING & DISPERSING

CMX: Universal Solid-Liquid Mixing System

/// Inline multi-level feeding & dispersing

When incorporating powders into liquids, the same problems keep arising when using traditional procedures: The formation of clumps and undissolved powder residues on unwetted tank surfaces and agitating tools. This results in extremely lengthy process cycles and the risk of quality fluctuations, which in turn reduce the productivity and process reliability of the systems. Inline dispersers represent state-of-the-art technology; capable of efficiently producing solid-liquid and liquid-liquid mixtures.

The CMX 2000 by IKA is the leading inline mixer for the fast, yet homogeneous, incorporation of powders into liquids.

Due to the multi-level construction (pump and disperser levels), reliable functionality is achieved, even with high viscosities. The CMX inline disperser can be used for the most varied of applications. Typical powders that can be effectively processed include hydrocolloids, starches, or filling materials. The machine is successfully deployed in a wide range of sectors, such as the pharmaceuticals, chemicals, foodstuff, cosmetics, and paint manufacturing industries. End products include wall paints, tablet coatings, and creams.

The CMX is available in 6 different sizes, for formulation quantities ranging from 20 up to 40,000 liters. Reliable upscaling, i.e. applications ranging from a pilot scale to large-scale production, is guaranteed, with the same process and the same quality of dispersion.

Powder dispersion systems with enhanced performance

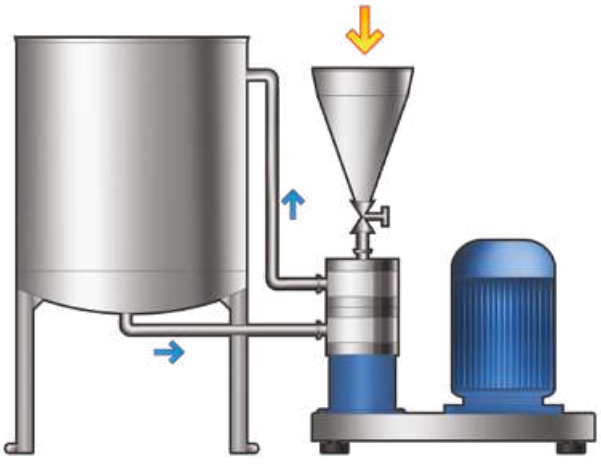
/// Functional Principle

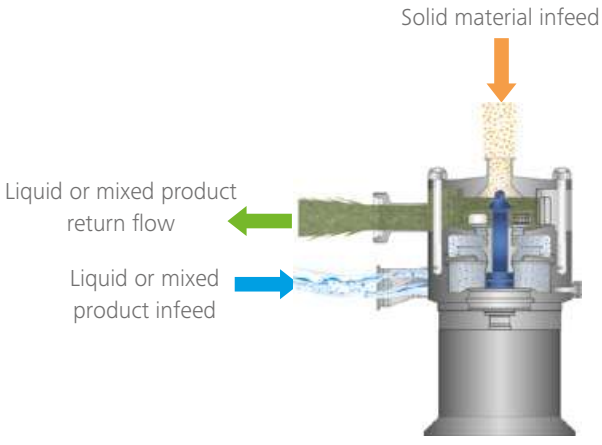
The CMX is usually operated within the recirculation process, with a solid material feed and a mixing tank. The solid is added to a fixed quantity of liquid via the inline device. As a result of the constant circulation of the liquid inside the machine, a strong vacuum is generated locally, which sucks in the solid material. On account of the inline principle, whereby a small quantity of solid comes into contact with a sufficient quantity of liquid within a highly turbulent area, even powders that are difficult to wet can be incorporated without the formation of clumps. Within the dispersion chamber, rotor/stator tools ensure perfect mixing. The use of raw materials is highly efficient: quick processing with minimal use of resources.

Different tools can be used on each dispersion level – adjusted to suit the product and the process objective. On account of the multi-level arrangement, much higher suction rates are achieved than with single-level systems. If the product is then to be conveyed to the next product stage, this takes place without the use of additional pumps. The conveying capacity of the CMX is entirely sufficient.

Advantages of the CMX:

> A dual-action mechanical seal enables operation, even without product, and offers increased safety when processing toxic products
> A horizontal version is available as an option, thus facilitating a very low installation height
> Avoids the need for additional pumps or powder dosing systems
> A wide range of modular installation options ranging from individual machines, to complete customer-specific custom plants
> CIP, GMP, and ATEX-compliant design possible
> Closed process to avoid dust and solvent emissions
> Solids fed in at ground level
> Addition of solids can take place physically separate from the mixing tank





CMX: The universal process technology device

/// The most flexible machine configuration

The CMX can be flexibly adjusted to the most varied installation and process requirements. For instance, a wide range of tools, both vertical and horizontal installation, and process connections to match the standard connections on the customer side are all possible. From a standard individual machine to a customer-specific plant with peripheral devices such as a solid feeding system or mixing vessels – IKA process technology can fulfill all customer requirements.

From an individual machine to a customer specific large scale plant with custom piping, valves, control units etc.

Enclosed sack emptying station with integrated fluidizer for dusty powders

Manual feeding using a funnel

Table frame as a feeding aid for non-dusty powders or fine granulates

Solid infeed:

Depending on the production scale and the vessel for the solids, the solid material can be fed into the CMX by means of a Big Bag station, sack emptying station, a loading table, directly via a funnel, or manually using a suction lance (straight from from the bag).

CMX 2000/05 integrated into a Big Bag station

Manual feeding using a suction lance

Infeed of liquid additives

In addition to the intake of powders and granulates, liquid can also be directly fed in by means of suction. Even liquid additives such as these can be added to the main flow by means of the inline system, which is particularly advantageous when working with large quantities, as a means by which to distribute the additive quickly and evenly.

Liquids are generally sucked in a controlled manner from feed funnels or separate vessels into the process chamber, via additional nozzles, and are perfectly mixed with the main flow on account of the rotor/stator combination.

Suitable for pharmaceutical production:

The CMX is ideally suited for the manufacture of the most varied pharmaceutical products. GMP-compliant, enclosed designed, also integrated into a glove box – all this is possible thanks to our decades of experience within the pharmaceuticals industry.

CMX 2000/05 integrated into a glove box

CMX 2000/04 with enclosed powder funnel for rinsing and cleaning

Compact XPP plant for mixing and dispersing:

Integrated into the base of the installation, the CMX inline disperser is the centerpiece of this plant. Even with extremely high viscosities, the CMX achieves homogeneous mixtures, using very high shearing forces and constant delivery rates. The compact XPP plant is ideally suited for the efficient manufacture of highly viscous end products with a high solid content.

Technical data

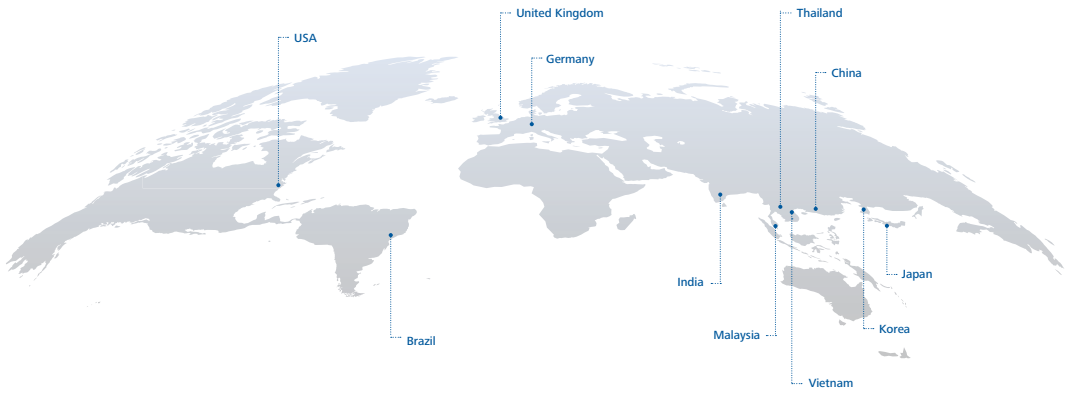
/// Overview

Type	Typical Batch sizes [l]	Circulation rate [l/h]	Typical diffusion of solids [kg/h]*	Motor power [kW]	Typical viscosity range (mPas)
CMX 2000/04 (Process Pilot)	20 – 250	5,000	210 - 2,300	4	1 – 5,000
CMX 2000/05	100 – 2,000	14,000	450 - 6,300	15	1 – 10,000
CMX 2000/10	300 – 5,000	32,000	1,200 - 15,700	30	1 – 10,000
CMX 2000/20	3,000 – 10,000	70,000	2,000 - 24,000	55	1 – 10,000
CMX 2000/30	5,000 – 20,000	110,000	3,000 - 38,000	110	1 – 10,000
CMX 2000/50	> 15,000	200,000	6,300 - 70,000	200	1 – 10,000

* Actual diffusion of solids highly dependent on product properties and installation

IKA

designed to work perfectly



EN

IKA-Werke GmbH & Co. KG
Janke & Kunkel-Straße 10, 79219 Staufen,
Germany
Phone: +49 (0) 7633 831-0
Email: process@ika.de

/// WORLDWIDE

USA
IKA Works, Inc.
Phone: +1 910 452-7059
Email: process@ikausa.com

UNITED KINGDOM
IKA England Ltd.
Phone: +44 1865 986 162
Email: sales.england@ika.com

INDIA
IKA India Private Limited
Phone: +91 80 26253 900
Email: process@ika.in

VIETNAM
IKA Vietnam Company Limited
Phone: +84 28 38202142
Email: sales.proc-vietnam@ika.com

BRAZIL
IKA Brazil
Phone: +55 19 3772-9600
Email: sales@ika.net.br

MALAYSIA
IKA Works (Asia) Sdn Bhd
Phone: +60 3 6099-5666
Email: sales.process@ika.my

CHINA
IKA Works Guangzhou
Phone: +86 20 8222 1771
Email: Sales-Proc@ika.cn

THAILAND
IKA Works (Thailand) Co., Ltd
Phone: +66 85 0999274
Email: sales.proc-Thailand@ika.com

KOREA
IKA Korea Ltd.
Phone: +82 2 2136 6800
Email: info@ika.kr

JAPAN
IKA Japan K.K.
Phone: +81 6 6730 6781
Email: info@ika.ne.jp

202303_CMX_IWS_EN_94000343