

IKA

designed to work perfectly



MODULAR PROCESSING PLANT ON A LABORATORY SCALE
IKA magic PLANT

magic PLANT

/// The modular processing plant on a laboratory scale

Emulsifying different liquids, dispersing or dissolving solids in liquids, mixing or drying powders, all this and much more can be done with a single unit! Available in three different versions, there are virtually no limits to the magic PLANT laboratory system. The magic PLANT is very easy to clean, universally applicable and virtually maintenance free. All parts that are in contact with the product are made of 316L stainless steel (special materials available on request).

With a viscosity range of up to 100,000 mPas for the processing, the magic PLANT is the ideal laboratory system for use in a wide range of applications such as pharmaceuticals, cosmetics, food technology, electronics and chemistry.

Thanks to its high degree of flexibility and suitability for the processing of small product volumes of approx. 0.5 to 2 liters, the magic PLANT is your ideal partner for product and process development and quality assurance. It is also ideal for use in educational institutions such as universities and schools, and is invaluable when it comes to the production of small batches. The magic PLANT uses the same technology as IKA's industrial production plants, which enables process simulation and a seamless scale-up from development to production. Important advantages of the magic PLANT are its modular design, the possibility to integrate magic LAB and ULTRA-TURRAX T 25 dispersing machines, as well as the infinite adjustability of the stirrer speeds over a very wide range.

Being a global company with more than 100 years of history, IKA is a competent specialist in process technology. As a multi-award-winning innovation leader, we introduce our experience into our products.

Have fun discovering the magic PLANT!



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Scale-up and down

/// From the lab machine to the processing plant and back again using a single technology

The magic PLANT was designed for small scale product requirements and, specifically, to simulate various IKA processing plants. Thus you can utilize outstanding technology from the development to the production phase from only one single supplier.

The fact that the same procedures and process parameters are used for both the laboratory and for production ensure a reliable scale-up. When scaling down from the production plant to the magic PLANT, changes in the process parameters or ingredients can be easily determined with limited material usage and effort.



magic PLANT basic



SPP 2000



magic PLANT inline



SPP 500



magic PLANT powder



CD 100

magic PLANT basic

/// High-quality starter package with numerous options



For videos of magic PLANT please visit www.ikaprocess.com

The magic PLANT basic is the basic version of the small processing plant. It is used for mixing and stirring low to high viscosity products. The components are added to the mixing vessel and are mixed using the agitator. Due to its conical vessel bottom, even very small quantities can be processed. Made of high-quality materials, the magic PLANT is very easy to clean, universally applicable and virtually maintenance-free.

The magic PLANT basic is ideally suited for general stirring and mixing tasks as well as for reactions. The high-quality basic version can be extended with additional accessories, so that it can be adapted to many different applications. The addition of the magic LAB inline dispersing machine offers even more functionality (see pages 8 + 9). The magic PLANT basic can be upgraded to the inline version at any time. The user-friendly touchscreen is intuitive to use.

BASIC EQUIPMENT

- > Anchor stirrer with scraper
- > Propeller stirrer for low to medium viscosity mixing
- > Flush fitting plug in the vessel return pipe
- > Manual bottom outlet valve
- > Easy-to-use color touch screen to display the speed, power and torque of the stirrer, display of product temperature and timer
- > Sensor for measuring the product temperature in the vessel

OPTIONAL ACCESSORIES

- > Always the right temperature: The double-walled mixing vessel can be effectively heated or cooled. The temperature is controlled by external thermostats or coolers.
- > The Ultra-Turrax T 25 high-performance disperser can be incorporated for efficient homogenization, emulsification and particle size reduction.
- > For further accessories see page 12





PRACTICAL FEATURES

- > CIP function by means of a high-speed stirrer
- > Easy to clean thanks to the removable stainless steel tray
- > Components can be removed without any tools
- > Swiveling vessel cover for free access to the vessel and the agitator
- > Possibility to work under pressure or under vacuum
- > Product discharge by tilting the container or opening the bottom outlet valve
- > The double wall of the vessel can be heated or cooled for effective heating or cooling of the mixed material

magic PLANT inline

/// The ultimate processing plant simulation



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magic PLANT please visit
www.ikaprocess.com

In the inline design, the magic PLANT is used in recirculation or in single-pass mode. The integrated magic LAB high performance inline disperser is connected directly to the bottom outlet of the vessel. Both machines can be controlled via a common color touch screen, making operation extremely easy. A conversion kit enables you to convert the magic PLANT inline back to the basic version.

The modular design with interchangeable dispersing tools as well as the infinitely adjustable speed make it easy to adapt to the product characteristics and the process objective. A generously sized tube with a 3-way valve is used for circulation and draining of the product. Via this circulation line, particularly effective dispersing / homogenizing can be achieved in circulating operation.

The magic PLANT inline is ideally suited for homogenization, emulsification, wet milling and dispersing of products within a wide viscosity range.

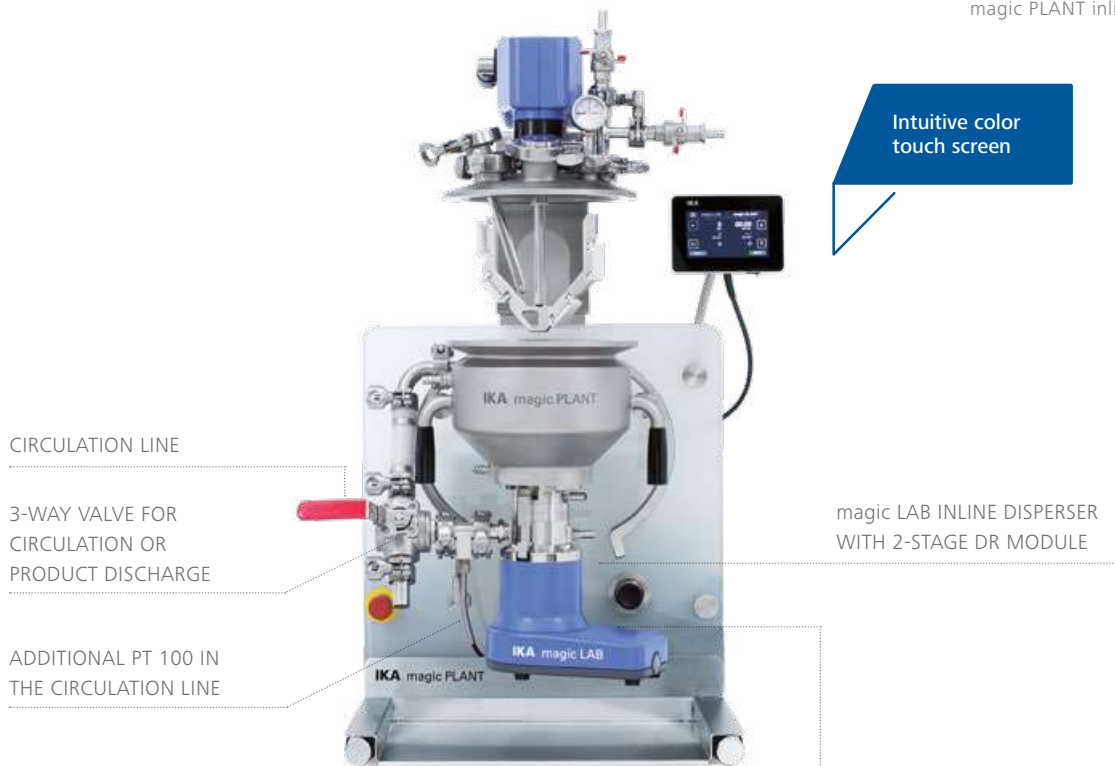
BASIC EQUIPMENT

- > Anchor stirrer with scraper
- > magic LAB modular inline dispersing unit
- > Circulation line with clamp connections and additional temperature sensor
- > 3-way valve

OPTIONAL ACCESSORIES

- > DBI module with funnels for direct feeding of solid and liquid additives
- > For further accessories see page 12





magic LAB

/// The modular all-rounder

The high performance inline disperser can be equipped with 7 different working modules. The modules, based on the rotor-stator system, are suitable for various mixing processes and viscosities. A wide speed range and various tool combinations allow for an ideal shear rate and therefore a very homogeneous product.



UTL basic module

For simple homogenization tasks



MK / MKO / MCD module

Wet milling with a milling tool with an adjustable gap. Emulsification (MK) and de-agglomeration (MKO) of viscous products



CMS module

Lump and dust-free incorporation of powders into liquids



DR (DRS) module

Two- or three-stage version for producing the finest emulsions and suspensions. Also ideal for single pass processes



DBI module

Direct feeding of liquid and solid additives into the dispersion chamber

magic PLANT powder

/// For drying and mixing of solid bulk materials



For videos of
magic PLANT please visit
www.ikaprocess.com

With the magic PLANT powder, you can gently and efficiently mix or dry solids such as powders and granules. The machine is suitable for starting a process when the ingredients are in a completely liquid, semi-dry or dry state. For vacuum contact drying, the entire vessel is heated and the resulting vapors are extracted by means of a vacuum pump.

The special spiral stirrer with flow breaker ensures an intensive radial and vertical mixing of the bulk material. The complete system can be tilted out of the vertical position during operation. This ensures optimal drying and homogeneity even with difficult products.

When the system is closed, it can be filled via a nozzle in the vessel lid. The product is discharged via the large bottom outlet valve or by tilting of the vessel.

BASIC EQUIPMENT

- > Spiral stirrer
- > Vessel tilting device
- > Manual bottom outlet valve

OPTIONAL ACCESSORIES

- > Vacuum pump:
The design of the magic PLANT powder even allows for drying at the extremely low vacuum pressure of < 5 mbar. As a result, the liquid evaporates quickly and efficiently, thus saving energy even at low temperatures. This ensures a gentle drying of your products. Adjustable regulation of the final vacuum.
- > Heated, double-walled lid to prevent condensation.
- > For further accessories see page 12.



SWIVELING, REMOVABLE AND TILTABLE VESSEL

The entire system can be tilted by 45° to improve the mixing effect. Easy emptying, even of difficult products, by complete tilting (180°) of the vessel

SPIRAL STIRRER



VESSEL COVER WITH CONNECTIONS FOR

- > Product feeding
- > Vacuum / pressure / fittings
- > ULTRA-TURRAX T 25 (optional)
- > Flow breaker
- > PT 100 (optional)
- > Additive dosing unit
- > Sight glasses
- > Manometer (pressure sensor optional)
- > Safety valve

magic PLANT accessories

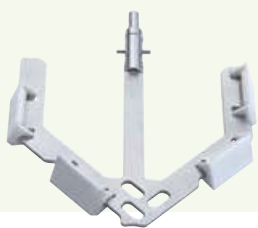
/// Intelligent accessories for virtually unlimited possibilities

There are many different accessories available for the magic PLANT. Practical aids such as an LED light for the vessel cover or injector sets for additives or distillation units expand the possibilities of process simulation and make working both efficient and uncomplicated.

The various stirring elements can be replaced without the need of using tools

Anchor stirrer

For moving the contents in a radial direction over the entire viscosity range.



Propeller stirrer

For simple mixing tasks and for moving the vessel content in the low- to medium-viscosity range.



Spiral stirrer

Suitable for mixing and drying of powders and granules as well as for the movement of highly viscous liquids.



Toothed disk stirrer

Suitable for mixing and dispersing in viscous liquids, as well as for disaggregation of large, soft agglomerates.



Customizing

The magic PLANT is also available as a special customized solution. For example, special materials such as alloy C-22, or special stirrers can be used. High temperature versions are also available.

We are happy to help!



ACCESSORIES	magic PLANT basic	magic PLANT inline	magic PLANT powder
ULTRA TURRAX T 25	X	–	X
Anchor stirrer with scraper	X	X	–
Propeller stirrer	X	X	–
Spiral stirrer	X	X	X
Toothed disk stirrer	X	X	–
magic LAB modular inline disperser	–	X	–
Glass vessel	X	X	X
Vessel cover can be heated and cooled	X	X	X
Distillation unit	X	–	X
Vacuum pump	X	X	X
LABLIFT	–	X	–
Mobile stainless steel table	X	X	X
LED lamp for vessel cover	X	X	X
Injector set	X	X	–
Storage rack for vessels	X	–	X
Funnel set for DBI	–	X	–
Thermostats	X	X	X
Cooler	X	X	–



Glass vessel

Optional equipment of the magic PLANT with a transparent glass vessel for visual monitoring of the mixing process.



Mobile working with a lot of space

The mobile stainless steel table provides enough space to set up the magic PLANT and peripherals on two levels. Drawers with ball bearings and removable trays make it easier to work and store the components properly.

Technical Data

/// The three versions of the magic PLANT at a glance

TECHNICAL DATA	magic PLANT basic	magic PLANT inline	magic PLANT powder
Max. admissible temperature	150 °C	80/120 °C	150 °C
Operating pressure range	-1 to 2,5 bar (5 bar*)	-0,5 to 2,5 bar	-1 to 2,5 bar (5 bar*)
Typical useful volume	1 – 2 l	0,5 – 2 l	0,5 – 1,5 l
Dimensions (L x W x H)	440 x 705 x 650 mm	440 x 705 x 650 mm	440 x 705 x 650 mm
Voltage	220 – 240 V (100 – 120)	220 – 240 V (100 – 120)	220 – 240 V (100 – 120)
Viscosity	1 – 100.000 mPas	1 – 10.000 mPas	–
Weight	approx. 60 kg	approx. 71 kg	approx. 60 kg
Speed range of stirrer	0 – 2.000 min ⁻¹ (Propeller, Dissolver) 0 – 350 min ⁻¹ (Anchor, Spiral)	0 – 2.000 min ⁻¹ (Propeller, Dissolver) 0 – 350 min ⁻¹ (Anchor, Spiral)	0 – 350 min ⁻¹ (Spiral)
Motor power	400 W	400 W	400 W

* with optional safety valve

DISPERSER T 25 AND INLINE DISPERSER MAGIC LAB

TECHNICAL DATA	T 25 (for magic PLANT basic)	magic LAB (for magic PLANT inline)	T 25 (for magic PLANT powder)
Motor power	500 W	900 W	500 W
Speed range	3.400 – 24.000 min ⁻¹	3.000 – 26.000 min ⁻¹	3.400 min ⁻¹
Circumferential speed max.	22 m/s	41 m/s	4 m/s

labworldsoft 6

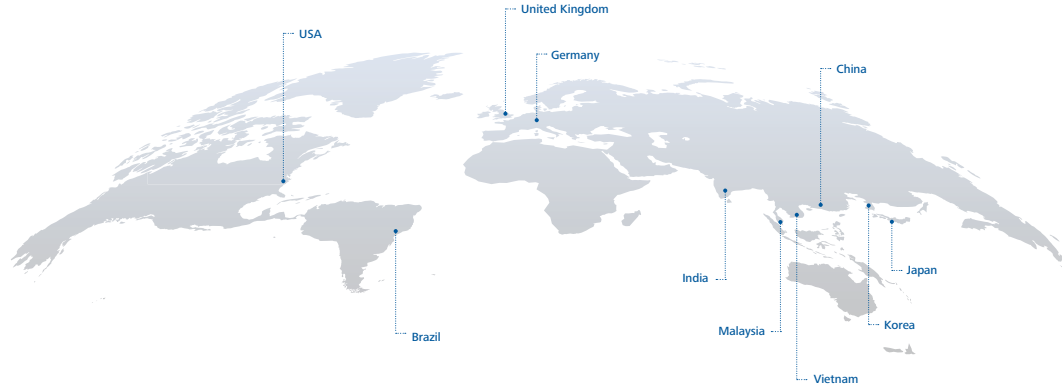
/// Multi-purpose software for measuring, controlling and adjusting laboratory equipment

The labworldsoft software from IKA enables a network of up to 64 laboratory devices to be set up, so they can all be controlled from a PC at the same time. In addition to IKA products, third-party laboratory devices can also be integrated with labworldsoft. This allows you to benefit from shorter process times and higher productivity. labworldsoft supports automated processes and the full reproducibility of trial procedures. Thus your laboratory trials and procedures will work without effort and efficiently.





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Subject to technical changes.



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