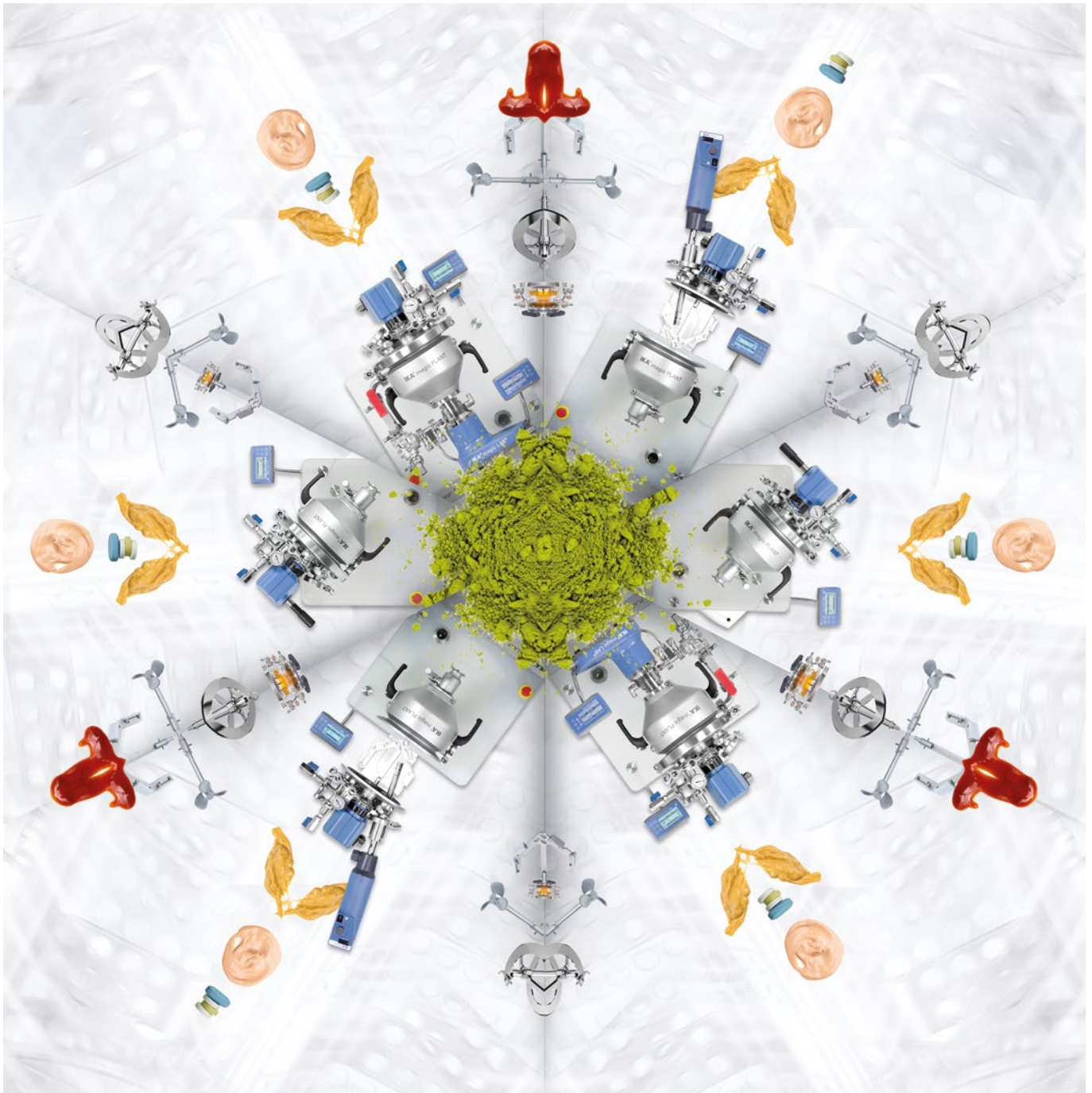


# IKA

designed to work perfectly

EN



The most versatile Laboratory Reactor:  
**THE IKA MAGIC PLANT.**

## magic PLANT

/// The innovative laboratory-scale process plant, ideal for any industry

**The magic PLANT gives you a competitive edge by bringing your products to market faster in the cosmetics, food and pharmaceutical industries.**

With the magic PLANT, we offer the ultimate in versatility. It is a modular, laboratory-scale process system that can be used for batch and inline processes as well as for powder mixing and drying.

The magic PLANT is ideal for emulsifying, mixing and dispersing liquids with liquids, solids with liquids, wet milling, and for the mixing and drying of powders. It is suitable for viscosities up to 100,000 mPas.

Mixing solids? No problem. The magic PLANT powder efficiently mixes solids to perfection.

"The flexible design, in combination with the 2 liter capacity makes the magic PLANT the optimal solution for laboratory scale product and process development. The magic PLANT is ideal for R&D work and for use in universities. It is the best solution for the production of small quantities."

As a global company with over 100 years of experience, we are experts in process technologies used in the cosmetics, food and pharmaceutical industries. Our vast experience has led to the creation of our products. We received the "TOP 100" award in 2013 as well as in 2015 and are among the most innovative medium-sized companies.

Have fun discovering our magic PLANT!



Experience the innovative solutions from IKA online: [www.ikaprocess.com](http://www.ikaprocess.com).



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# From laboratory to production

/// Reliable scale-up

The magic PLANT was developed for laboratory-scale simulations of the IKA process plants, SPP and MP as well as for small-scale product requirements. Once a satisfactory result has been achieved at the laboratory level, the application can be scaled accurately for larger quantities.

Since the IKA magic PLANT was designed with the same process parameters as the industrial-scale process plants, we can ensure a reliable and seamless transition from laboratory to full production. These identical process parameters are also beneficial when planning changes to process parameters or application requirements. The magic PLANT enables you to test and complete these changes at the laboratory level before transferring the process back to the industrial-scale process plants.



Speed adjustment.



Tilting device for vessel cover.



Sterilization in Place.



Modular design.



Clean in place.



Processing of samples with viscosities up to 100,000 mPas.



### SUITABLE FOR ...

- › applications with high flexibility requirements
- › small product volumes
- › Research & Development
- › product developers
- › process developers
- › laboratory-scale production
- › quality control
- › institutes
- › universities
- › academia



### BRIEFLY EXPLAINS ...

- › multi-functional laboratory-scale process systems
- › product volumes of approx. 0.5 to max. 2.0 l
- › dispersing of liquids, solids or gases in liquids
- › simulation of production processes
- › pure batch or batch inline process
- › viscosities ranging from water to creams
- › wet milling
- › dissolution processes
- › reactions
- › mixing, drying and coating of powders

## magic PLANT basic

/// The starter package for all options

The magic PLANT basic is the standard process plant execution. It is used for mixing and dispersing a wide range of products and can process media with viscosities up to 100,000 mPas. The ingredients are mixed in the vessel by means of the stirring tools.

Anchor and propeller stirrers are included in the magic PLANT basic package.



### IDEAL FOR R&D

- › flexible design
- › modular construction
- › **wide range of accessories**
- › replaceable vessels for versatile R&D work
- › can be adapted to fit many applications
- › suitable for pressure and vacuum

### FUNCTIONAL PRINCIPLE

- › efficient mixing
- › dispersing
- › heating / cooling
- › addition of additives
- › processing of highly viscous products
- › work under pressure and vacuum
- › degassing

### NOTEWORTHY FACTS

- › FDA design standard
- › **customized special solutions possible**
- › qualification possible
- › nearly maintenance-free
- › existing magic LAB customers have the option to upgrade

### SPECIAL ADVANTAGES IN HANDLING

- › lifting of the stirrer and cover is facilitated by means of the electrical spindle drive
- › **agitator drive with change of rotation**
- › flow breaker
- › reduced dead-spots with bottom discharge outlet
- › integrated temperature measurement in the bottom of the vessel
- › pressure vacuum fixture
- › removable drip plate
- › pivoting cover and agitator drive for open access to the vessel
- › double jacketed vessel that can be heated or cooled
- › **simple assembly of the agitator without using tools**
- › anchor stirrer with wipers are standard
- › agitator drive with change of rotation
- › automatic lift to facilitate opening and filling
- › **highly-resistant standard materials stainless steel 1.4404/FPM/PTFE**

### /// Functions



**FEED ADDITIVES THROUGH THE LID INJECTOR OR ADD DIRECTLY TO THE VESSEL**

Depending on quantities and application requirements, the materials can either be added through the lid injectory or by opening the lid and adding the contents directly to the vessel. To enable adding material directly to the vessel, the vessel lid can manually be pivoted to the side.

**PRODUCT DISCHARGE THROUGH TILTING THE VESSEL OR THROUGH BOTTOM OUTLET**

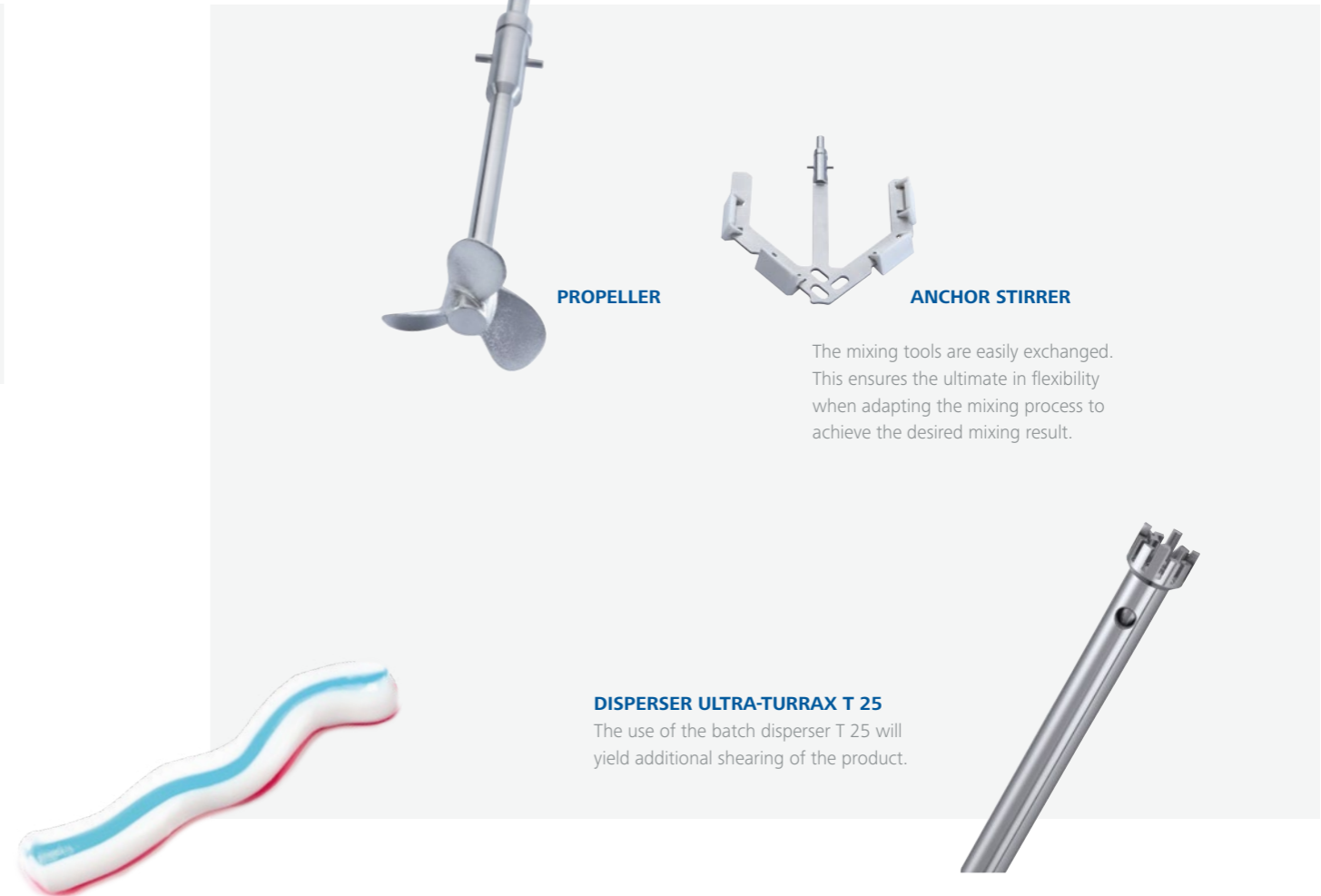
The final product can be discharged by completely tilting the vessel, or by opening the bottom discharge outlet.

### /// Easy cleaning



- › easily removable components
- › mixer and vessel can be removed without tools
- › drip plate
- › CIP capable

### /// Accessories



**PROPELLER**

**ANCHOR STIRRER**

The mixing tools are easily exchanged. This ensures the ultimate in flexibility when adapting the mixing process to achieve the desired mixing result.

**DISPERSER ULTRA-TURRAX T 25**

The use of the batch disperser T 25 will yield additional shearing of the product.

## magic PLANT inline

/// The ultimate process system simulation

The magic PLANT inline is equipped with an effective and versatile dispersing machine, the IKA magic LAB. The modular high performance magic LAB is mounted to the magic PLANT vessel bottom and is available with seven mixing heads. This enables an easy adaptation to meet the respective mixing application requirements. It can achieve a circumferential speed of up to 40 m/s and can achieve particle sizes that cannot be achieved with conventional batch dispersers. The magic PLANT inline is suitable for homogenizing, emulsifying, wet milling and dispersing products from low to high viscosity.



### EFFECTIVE DISPERSING/HOMOGENIZING IN AN INLINE PROCESS

Batch inline recirculation process: The product is manufactured in recirculation with the magic LAB. While it is being recirculated, additives, for instance can be added or tempered. The valve is then opened and the product is discharged.

Single pass inline: A product is filled and processed in the vessel and discharged in a single pass. Alternatively, ingredients can initially be mixed in the magic PLANT with the mixer and then discharged in a single pass. This method is used for continuous processes.

### /// Execution examples



magic PLANT inline in the construction as a system for the inline powder input with magic LAB module CMX.



magic PLANT inline with the DBI module and a hopper.

### /// Application examples

#### CHEMICAL INDUSTRY

- › Cleaning agents
- › Grease
- › Pigments and dyes
- › Lubricants

#### COSMETIC INDUSTRY

- › Mascara
- › Eye shadow
- › Creams
- › Body lotions

#### FOOD INDUSTRY

- › Sauces
- › Dressings
- › Mayonnaise
- › Seasonings

#### PHARMACEUTICAL INDUSTRY

- › Lotions
- › Ointments
- › Suppositories
- › Eye drops

#### ELECTRONICS - IT

- › Ceramic slurries
- › Battery & fuel cell slurries
- › Circuit board coatings
- › Solar panels

## magic LAB

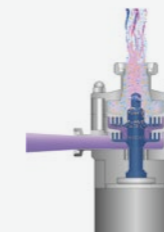
/// The heart of the magic PLANT inline



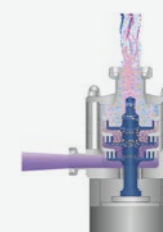
#### magic LAB

- › modular structured processing section
- › simple handling
- › inline operation
- › gradual speed setting
- › circumferential speeds of 5 – 40 m/s

### /// magic LAB modules



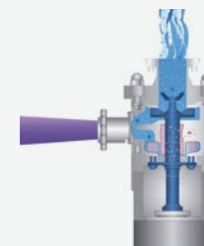
**DR module, 2-stage**  
Standard module of the magic PLANT inline.



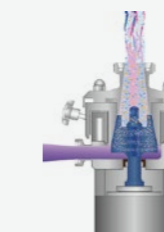
**DR module, 3-stage**  
For manufacturing of the finest emulsions and suspensions and for the simulation of single pass processes.



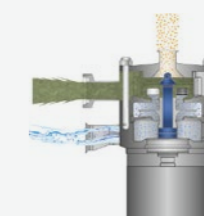
**UTL module**  
Single-stage high shear mixer used for simple homogenizing tasks.



**DBI module**  
2-stage dispersing and pumping of solids and liquids to the dispersing chamber



**MK/MKO module**  
Wet milling with an adjustable milling gap. Emulsifying (MK) and desagglomerating (MKO) of viscous products.



**CMX module**  
Lump and dust free processing of powders and granules.

## magic PLANT powder

/// For drying or mixing of solids

"The magic PLANT powder is used for mixing and drying of solids, such as powders and small granules. For vacuum-contact-drying the complete vessel is heated, Vapors are removed by means of a vacuum pump. The combination of the spiral agitator and that the vessel can be tilted ensures an optimal mixture and discharge of the product. The end product can be discharged through the bottom outlet or by tilting the vessel."



### GENTLE AND EFFICIENT MIXING

The magic PLANT powder serves for the gentle and efficient mixing and drying of all free-flowing solids and can also handle products with different bulk densities and particle sizes.

The mixture is carried out with the help of a special spiral agitator, which intensively mixes the material radially and tangentially.



### /// magic PLANT powder – the little sister of the IKA powder mixer/dryer CM/CD



### /// Application examples

#### CHEMICAL INDUSTRY

- › Salts
- › Crystals
- › Fine chemicals
- › Suspension separation
- › Thermal drying

#### PAINT AND VARNISH INDUSTRY

- › Metal powder
- › Color pigments

#### FOOD INDUSTRY

- › Tea mixtures
- › Coffee powder products
- › Dry soups
- › Sauces
- › Milk solids

#### PHARMACEUTICAL INDUSTRY

- › separation of active substances from solvents



#### OPTIONAL: ULTRA-TURRAX T25

The disperser ULTRA-TURRAX T 25 is mounted to the vessel lid and used for deagglomeration.



## magic PLANT

/// Intelligent accessories



### VESSEL COVER WITH CONNECTIONS FOR

- › product addition
- › vacuum / pressure / fixtures
- › ULTRA-TURRAX T 25 (optional)
- › flow breaker
- › PT 100 (optional)
- › additive dosing and a sight glass
- › sight glasses
- › manometer (optional pressure sensor)
- › safety valve

### INTELLIGENT ACCESSORIES FOR YOUR MAGIC PLANT

- › conversion kits; batch to inline
- › easy to exchange mixing tools
- › magic PLANT retrofitting option for existing magic LAB dispersers.
- › condenser
- › distillation set
- › DBI module with feed equipment, special piston valve
- › pressure-injector to feed additives into the pressurized vessel
- › suited for pressure up to 5 bar
- › gas/steam injector
- › special generators for viscous media

/// Intelligent solutions in detail



PROPELLER

ANCHOR STIRRER

SPIRAL AGITATOR

DISSOLVER DISC

### /// Everything under control



**GLASS VESSEL**

The double-walled glass vessel allows you to keep an eye on the process and has the possibility for tempering.



**HOPPERS AND VALVES SPECIFICALLY FOR THE MAGIC PLANT INLINE**

Hoppers and valves for liquids and solids for direct feed of additives into the dispersing chamber from the magic LAB.

### /// Multiple uses



The magic PLANT has a double-jacketed mixing vessel and can be heated and cooled. Our water baths and chillers are suitable for this task.

## labworldsoft®

/// Modern software with an innovative visual approach for laboratory automation.

labworldsoft® is a multi-purpose software program used for measuring, controlling and regulating laboratory devices. It can network up to 64 devices simultaneously via one PC. It not only integrates IKA laboratory devices, but also supports devices from other manufacturers.

This makes the automation of your laboratory experiments and processes easier and more efficient.



### SUMMARY OF YOUR BENEFITS

- › data recording
- › reduced workload
- › time savings
- › automation of recurring processes
- › exact reproducibility of processes

## Technical data

/// The magic PLANT at a glance

### TECHNICAL DATA

/// magic PLANT basic/inline/powder

	magic PLANT basic	magic PLANT inline	magic PLANT powder
Max. permissible temperature	150 °C	80/120 °C	150 °C
Working pressure	-1 to 2.5 bar (5 bar)	-0,5 to 2.5 bar	-1 to 2.5 bar (5 bar)
Max. useful volume	2 l	2 l	2 l
Dimensions (L × W × H)	440 × 705 × 650 mm	440 × 705 × 650 mm	440 × 705 × 650 mm
Voltage	220–240 (100–120)	220–240 (100–120)	220–240 (100–120)
Viscosity	1–100,000 mPas	1–10,000 mPas	–
Weight	approx. 60 kg	approx. 71 kg	approx. 60 kg
Speed	0 – 2,000 rpm	0 – 2,000 rpm	0 – 2,000 rpm
Scope of mixing tools	Anchor stirrer, Propeller stirrer	Anchor stirrer	Spiral agitator
Motor power	400 W	400 W	400 W

### DISPERSER

/// T 25 / magic LAB

	T 25 (optional)	magic LAB	T 25 (optional)
Motor power	500 W	900 W	500 W
Speed range	3,400–24,000 rpm	3,000–26,000 rpm	3,400 rpm
Circumferential speed max.	22 m/s	41 m/s	4 m/s



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/// SOCIAL MEDIA



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