IKA®

Master Plant MP

Designed
to work perfectly

Master Plant MP

Innovative solutions thought-out in detail

Applications

Food:
Sauces
Dressings
Mayonnaise
Liquid spices
Cheese spread
Ready-to-serve-meals
Baby food
Jams
Pet food
Starch solutions
Alginate

Beverage:
Fruit juices
Vegetable juices
Milkshakes
Protein drinks
Liqueurs
Sugar solutions
Flavours

Cosmetics:
Creams
Sun protection products
Perfumes
Shaving cream
Decorative cosmetics
Shampoo
Body-care products
Conditioners
Hand washing paste
Liquid soap
Tooth paste
Collagen suspensions
Carbopol emulsions

Rotary union for the heating/cooling medium to the spiral or counterrotating agitator

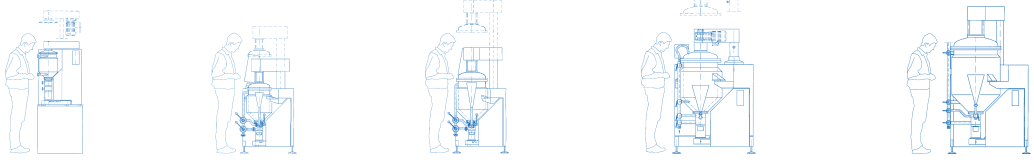
Plant completely encased in stainless steel

Sight glass for the pressure locking system

Motor completely cased

DBI 2000 disperser top mounted, easily accessible

IKA® homogenizing and emulsifying system Master Plant allows for efficient mixing, dispersing, heating/cooling, and optimum feeding of additives. The innovative GMP-conform mixing plant enables the processing of high viscous products, also under pressure and vacuum.



MP 10 MP 25 MP 50 MP 100 MP 200

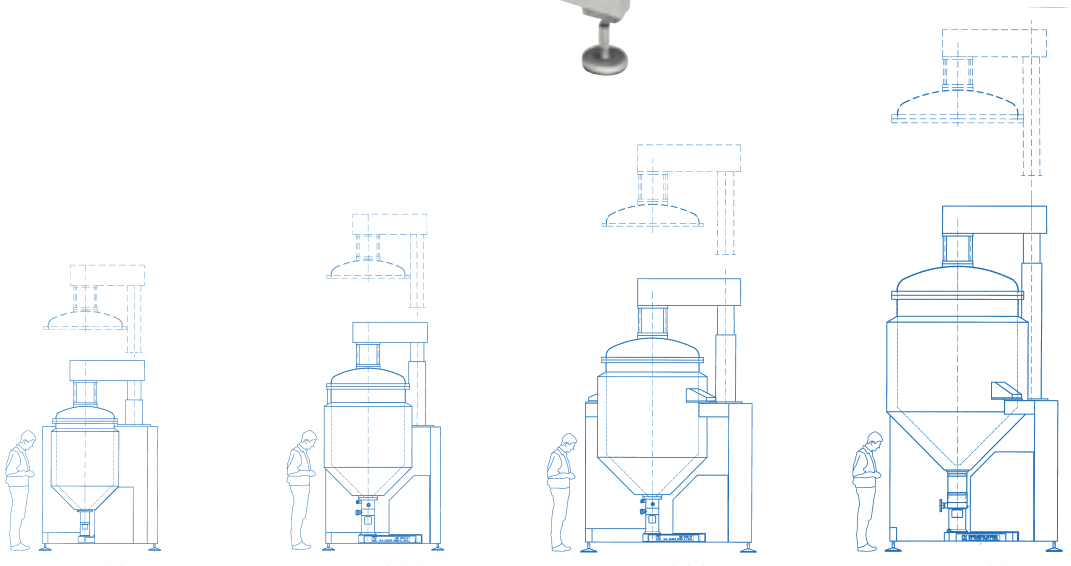
Master Plant

Executed in IKA® quality

Applications

Pharmaceutical industry:
Ointments
Gels
Eye drops
Eye ointment
Cough mixtures and similar
Infusion solutions
Sugar-/salt solutions
Suppository masses
Coatings
Lotions (W/O resp. O/W)
Paraffin emulsions
Lipid emulsions
Disintegration of vegetable substances
Antiseptics
Serum
Vaccines

Chemical industry:
Cleaning agents
Polishing agents
Sliding agents
Lubricant
Hotmelt adhesive
Corrosion protection agents
Wax emulsions
Ceramic suspensions
Polymer emulsions
Silicone emulsions
TiO_2 -suspensions
Colloidal solutions
Catalyst suspensions
Impregnating agents
Pesticides, Fungicides



MP 500 MP 1000 MP 2000 MP 4000

DBI 2000

Pumping, suction, mixing, dispersing

DBI 2000 Function principle:

The pumping rotator
creates suction within the system for circulation and for mixing at low shear stresses. At high speed it builds pressure up to 4 bar and creates a significant flow capacity which is very beneficial for CIP-cleaning.

Diaphragm valve
between inlet and dispersing chamber. This creates the necessary negative pressure for aspiration of additives without applying vacuum in the mixing vessel.

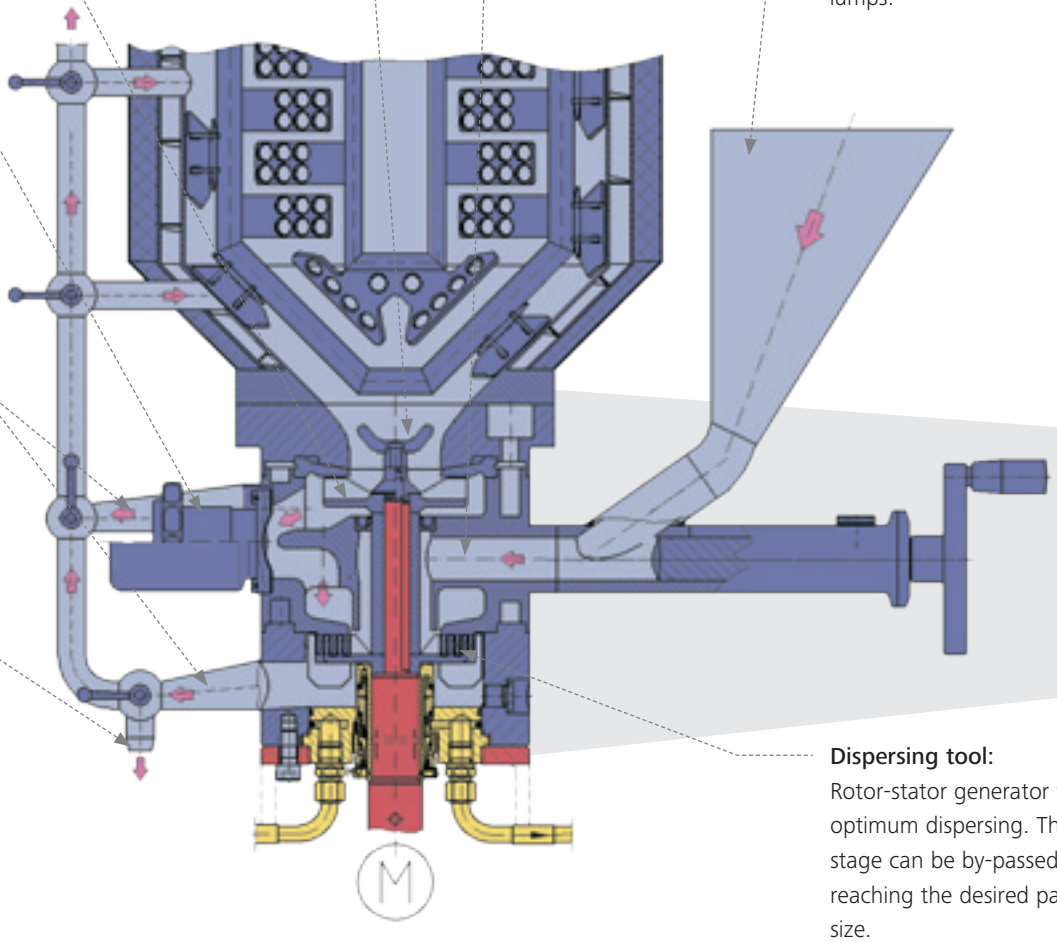
Outlet
into circulation loop with short or long circuit depending on batch size

Discharge

Agitator blades
for processing small batches are located in the base of the conical section of the vessel. These also support the pumping highly viscous products.

Piston valve
in an execution free of dead zones guarantees for avoiding of remaining quantities. Best cleaning possible.

Feeding
of solid or liquid additives directly into the dispersing chamber results in fast and complete wetting that avoids the formation of lumps.



Dispersing tool:
Rotor-stator generator for optimum dispersing. This stage can be by-passed on reaching the desired particle size.

To evolve, companies must grow. Growth requires additional production facilities. To be competitive the processes must be efficient.

IKA® is aware of these issues and have the right solutions.

We left traditions behind us and developed a new and compact machine. The mixing/dispersing machine model **DBI 2000**, for which patents are applied, combines the following functions in one unit:

Pumping, Suction, Mixing, Dispersing, Cleaning

Direct Batch Inline

The DBI 2000 is the heart of the universal, pratice oriented mixing plant MP. Innovative technical details enable better process data and reduced processing times at optiomum dispersing quality and extremely wide viscosity range.

Dispersing machine DBI 2000/04

– Separate feeding of solid and liquid additives directly into the dispersing chamber
– No necessity for vacuum in the vessel
– No floating of powders or difficulties in wetting

You already have a plant or you build plants?

This innovative machine also allows you to improve existing plants and to update them to the state-of-the-art, but you may also incorporate it into new plant conceptions. Our engineers will be pleased to give you advise.

Master Plant

An innovative range delivering quality, price and performance

The cover lock is available in two versions, depending on the process pressure: As a clamping ring (quick locking) or as conventional bolting version.

The cover is lifted and lowered by means of a spindle drive in the **lifting column**. Operational safety is guaranteed by electrical and mechanical interlocks. Additionally the cover can be swung through 135 degrees for better maintenance and visual inspection.

Master Plant MP 1000 with partially lifted counter-rotating agitator

Scale-up from laboratory to the large-scale production

Develop new products and optimize your processes with the IKA® systems Master Plant in the laboratory and pilot plant sizes MP 10, MP 25 or MP 50!

The same design, comparable geometries of working tools as well as identical operation possibilities provide an easy scale-up of the developed processes to plants with higher batch volumes.

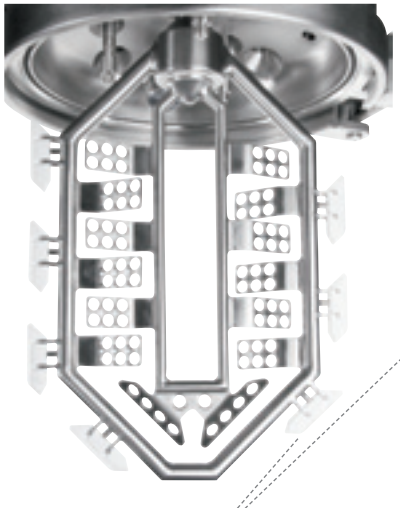
Pilot system Master Plant MP 50 with two funnels for separate feeding of liquid and solid additives

Two alternative agitator geometries

The Master Plant is available with two different agitators: The counter-rotating agitator for excellent and even mixing of the vessel content. Optimum vertical and horizontal mixing. The inner agitator can be heated/cooled, thus shortening the time necessary for heating or cooling. Suitable for viscosities up to approx. 100.000 mPa·s.

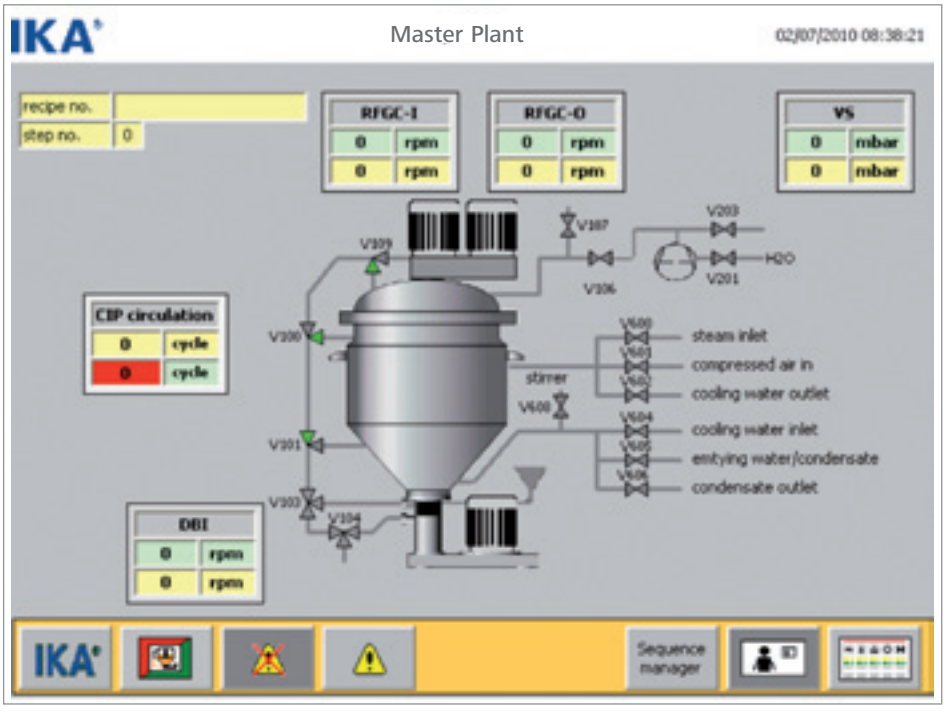
The spiral agitator can be completely heated or cooled. This shortens the time necessary for heating or cooling by up to 40%, thus offering significant advantages especially for cooling and stabilization of emulsions. Suitable for viscosities up to approx. 30.000 mPa·s.

CIP-cleaning:
A minimum of three spray nozzles ensures thorough cleaning without dead spots or shadow areas. Sufficient pressure and throughput to feed the spray nozzles is created by the dispersing machine DBI. There is no need for additional CIP-pump.



Movable scraper

Electronic control with large touch screen:
- All essential process data are indicated
- Graphical operator surface
- Optional: Formulation entry
  Automatic operation
  Network connection




IKA WERKE
MASTER PLANT MP50
IKA WERKE DBI 2000

IKA® QUALITY

Essential advantages of the Master Plant

– Viscosity range from liquid to paste (approx. 100 Pa·s)

– Feeding of solid or liquid additives without vacuum in the mixing vessel

– Formation of lumps is avoided by direct feeding of the additives into the dispersing chamber

– Treatment of smallest quantities down to approx. 15% of the nominal volume

– Separated circulation loop (short/long) for minimizing of dead spots and loss of material

– Important reduction of heating or cooling times, due to the heating/cooling of the spiral agitator

– Counter-rotating agitator on choice for highest viscosities, the inner agitator can be heated/cooled

– Multifunctional pumping- and dispersing machine DBI 2000/..

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

– Exchangeable dispersing tools

– Mixing and dispersing quality adjustable

– Low maintenance required

– The geometry of vessel and mixing units enables excellent scale-up possibilities

– The complete plant can also be supplied in Ex-protected execution acc. to the 94/9 EG (ATEX 95) guidelines

– The complete plant can be sterilized with steam (SIP)

– Direct steam injection is optionally available

– Customer specific execution on request

Master Plant	MP 10	MP 25	MP 50	MP 100	MP 200	MP 500	MP 1000	MP 2000	MP 4000
Mixing vessel (l)	13	32	65	130	260	650	1.350	2.600	5.200
Useful volume (l)	10	25	50	100	200	500	1.000	2.000	4.000
Working pressure in the vessel (bar)	-1 to 2,5	-1 to 2,5	-1 to 2,5	-1 to 2,5	-1 to 2,5	-1 to 2,5	-1 to2,5	-1 to 2,5	-1 to 2,5
Max. temperature in the vessel (°C)	150	150	150	150	150	150	150	150	150
Counter-rotating agitator									
Inner agitator									
Motor power, kW	0,37*	1,1	1,5	2,2	3	5,5	7,5	15	22
Output speed at 20-60 Hz, min^{-1}	120-360	90-270	66-198	54-162	43,2-129,6	32,4-97,2	24,8-74,4	20,4-61,2	16,8-50,4
Outer agitator									
Motor power, kW	0,37*	0,55	0,75	1,1	1,5	2,2	4	7,5	11
Output speed at 20-60 Hz, min^{-1}	40-120	30-90	22-66	18-54	14,4-43,2	10,8-32,4	8,4-25,2	6,8-20,4	5,6-16,8
Dispersing machine									
Type		DBI 2000/04		DBI 2000/05		DBI 2000/10		DBI 2000/20	
Max. capacity (H_2O) when dispersing (l/h)	2.000	2.000	2.000	5.000	5.000	15.000	15.000	20.000	20.000
Electric control	Cover and agitator via switch, DBI via Process-Pilot-Controller	Operation of the plant via an HMI (Human Machine Interface) in the control cabinet Operation unit: Colour-TFT-display 10,4" with touch screen							
Dimensions (counter-rotating agitator)									
Height (closed cover), mm	1.065	1.637	1.817	2.305	2.421	3.315	3.749	4.951	5.100
Height (open cover), mm	1.515	2.086	2.417	2.950	3.376	4.615	5.499	7.051	7.300
Width, mm	635	850	850	1.215	1.215	1.650	1.650	2.210	2.210
Depth, mm	661	1.010	1.010	1.407	1.407	1.900	1.900	2.710	2.710

* One shared drive for both agitators

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