

## Data Sheet

MP 4000



## MP 4000

The IKA Master Plant homogenizing and emulsifying system is a universal mixing system developed for the production of emulsions and suspensions in the pharmaceuticals industry in particular, but also in the food, beverages, cosmetics and chemical industries. The plant is GMP-compliant and guarantees a high degree of precision, safety and reproducibility of the results. The Master Plant system enables the direct feed of solids and liquids, mixing and dispersing of the vessel contents, heating or cooling of the product and processing under vacuum or under pressure.

The required degree of homogenization and particle crushing is achieved by circulation of the mixture via a DBI dispersing unit integrated into the base of the vessel. The proven technology of this patented IKA DBI homogenizer involves a two-stage operation:

A specially designed pump rotor with high circulation performance provides turbulence in the vessel, gentle circulation (with no shear) and sufficient pressure and throughput for CIP cleaning of the system.

An efficient generator (rotor-stator system) produces very high shear forces and thus dispersions with long-term stability and ultra-fine droplets. The design of the DBI creates a strong negative pressure in the product stream, which results in reliable feed of the components to the working chamber.

Depending on the process requirements, an integrated valve allows the product either to be pumped gently through the first stage only, or to be processed and dispersed in the two stages.

A special mixing element which switches the direction of rotation ensures thorough, uniform, vertical and horizontal mixing. For the processing of products of relatively high viscosity - up to 100,000 mPas - a counter-rotating stirrer system is recommended, comprising an outer stirrer and inner stirrer. They rotate in opposite directions and can be heated and cooled. The alternative spiral stirrer can be fully heated or cooled and is suitable for viscosities up to approx. 30.000 mPas. Additional flexible PTFE scraper attachments prevent deposits adhering to the vessel wall.

After processing, the product can be discharged completely without further pumping. The process is controlled via a modern touch-screen monitor. The electric control can be extended as required.

The complete system is also available in an explosion-protected version.

### Technical Data

Process temperature, max.	150 °C
Process temperature, min.	-10 °C
Max. Vacuum	-1 bar
Process pressure (max.)	2.5 bar
Viscosity (max.)	100000 mPas
Total volume	5200 l
Useful volume max.	4000 l
Useful volume min.	600 l
Agitator	Counter-rotating agitator
Agitator type	RFGC-08-A/A
Motor power inner agitator	22 kW
Motor power outer agitator	11 kW
Disperser type	DBI 2000/20
Max. total flow rate dispersing	20000 l/h
Max. total flow rate pumping	60000 l/h
Motor power disperser	45 kW
Total power consumption (approx.)	78 kW
Construction height with closed cover	5100 mm
Construction height with open cover	7300 mm
<b>Ident. No.</b>	<b>000MP4000</b>

The Master Plant MP series comes in 9 sizes ranging from 10 to 4,000 liters.

Advantages of the mixing system Master Plant MP:

- 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 agitator
- 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 be sterilized with steam (SIP)
- Direct steam injection is optionally available
- The complete plant can also be supplied in Ex-protected execution acc. to the 94/9 EG (ATEX 95) guidelines

Technical data of the Master Plant MP: