

Data Sheet

SPP 4000



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The approved "Standard Production Plant" (SPP) is the IKA solution for the production of emulsions and suspensions in many areas of application. Depending on its execution, the Standard Production Plant can be used for cosmetic creams and lotions, for mayonnaise or dressings in the food industry as well as for suspensions and emulsions in the chemical industry or for production of paints and lacquers. The SPP is an innovative and highly advanced, but cost effective mixing plant used for all standard process operations like mixing, stirring, homogenizing and dispersing. Due to its simple design, it allows easy operation and guarantees a constant mixing quality. Options like vacuum degassing, double jacket for heating or cooling and ports for the additive incorporation and sampling makes the SPP an ideal machine for the complete product manufacturing sequence.

Due to its unique vessel geometry and integrated tilting mechanism, the SPP has the advantage of unlimited access to the internals and very low installation height. Concentration on the major process requirements enables easy access for all maintenance work or visual checks with a minimum space requirement.

The robust anchor agitator with fixed flow breaker moves the entire batch volume even at extreme viscosities and serves for the basic mixing. A highly advanced scraper design keeps the vessel inner surfaces free from scaling and ensures the best heat transfer between product and double jacket.

High shear dispersing can be achieved by incorporating the economic ULTRA-TURRAX UTL 1000 series single stage homogenizer in the circulation line. For more complex applications and especially for inline additive dispersing the highly-sophisticated multi-functional two-stage mixing and dispersing machine type DBI 2000 is the right choice, which is directly mounted to the bottom outlet of the vessel.

The DBI 2000 is the heart of the Standard Production Plant. Its innovative design ensures quicker processing times and optimum dispersing quality over an extremely wide range of viscosities, e.g. up to approx. 100 Pas without additional pump. The unique and patented IKA DBI 2000 involves a two-stage operation:

The first stage has a specially designed pump rotor with high circulation performance that creates turbulence in the vessel for the blending and mixing purposes as well as sufficient pressure and throughput for CIP cleaning of the system.

The second stage is equipped with a high shear rotor-stator system that ensures dispersions with narrow particle size distribution and consequently long-term stability. The design of the DBI and its outstanding flow rate creates a local vacuum in the dispersing chamber, which results in reliable inline feeding of the product components to the

Technical Data	
Process temperature, max.	150 °C
Process temperature, min.	-10 °C
Viscosity (max.)	100000 mPas
Total volume	4790 l
Useful volume max.	4000 l
Useful volume min.	1200 l
Agitator	Anchor stirrer
Agitator type	RFG-08-A
Motor power agitator	7.5 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.)	55 kW
Construction height with closed cover	4449 mm
Construction height with open cover	5689 mm
Ident. No.	000SPP4000

batch volume.

Depending on the process requirements, an integrated valve allows the product either to be pumped without shear through the first stage only or to be processed and dispersed in the second stage. Flow rate and pressure of the DBI are more than sufficient to feed the spray nozzles of the integrated CIP system, thus no additional CIP-pump is required.

The Standard Production Plant SPP series comes in 8 sizes ranging from 25 to 4,000 liters production volume.

Advantages of the Standard Production Plant SPP:

- Cost effective mixing plant
- Highly customizable from simple to sophisticated configuration
- Viscosity range from water to paste level (approx. 100 Pas) without additional pump
- Feeding of solid or liquid additives without additional vacuum
- Formation of lumps is avoided by direct feeding of the additives into the dispersing chamber
- Treatment of smallest quantities from 30% - 100% of the maximum working volume
- Separated circulation loop (short/long) for minimizing of gas entry and loss of material
- CIP-cleaning without additional pump
- Exchangeable dispersing tools
- Speed control for adjustable mixing and dispersing quality
- Low maintenance
- 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 according to the 94/9 EG (ATEX 95) guidelines