The IKA® Master Plant MP has set new standards in this area as it is able to master the entire mixing technology repertoire and does not require additional peripheral devices.

The chameleon is a fascinating animal. It inhabits a variety of living spaces and can transform itself as to look invisible to its enemies and more like a plant, a leaf or a piece of wood. This ability to transform ensures the animal’s survival. Versatility is becoming increasingly important in the cosmetics industry and also when it comes to the countless demands put on modern mixing technology. The IKA® Master Plant MP is certainly a “quick-change” artist. It offers a solution for every production demand of the cosmetics industry. Its versatility is the result of a refined design.

The powerful secret of the IKA® Master Plant MP is the patented inline dispersing machine DBI, which is located at the vessel outlet, as various different process steps during the production of cosmetic products require the separation of the pumping and dispersing zones. A counter-rotating stirring system above the vessel outlet allows for preliminary, high turbulences within the mixing vessel. Below the tank, a separate pumping and dispersing zone enables a controlled feeding of the machine with the respective application. The high-capacity pumping unit feeds the content of the mixing vessel into the dispersing machine DBI 2000 (direct batch inline).

The mixture then flows into the dispersing chamber by means of an integrated valve. There, thanks to high shearing forces, a powerful rotor-stator system achieves optimal homogenization of the mixture, under pressure or vacuum. The integrated dispersing generator enables very fine droplet and particle sizes. This increases the longtime stability of the end products such as creams and lotions. The pumping unit is so powerful that it is able to effortlessly handle viscosities of up to 100 Pas. In addition, the high level of pumping and dispersing output represents an enormous advantage when compared to conventional mixing devices which only allow for feeding in connection with coarse, ineffective generators. The IKA® Master Plant MP can handle a variety of mixing processes: dispersing, emulsifying, homogenizing as well as the wetting of powders.
Premixing, heating, cooling, circulating

The product can be premixed in the vessel prior to the dispersing process. The vessel is equipped with load cells, which makes the dosing of raw materials an easy job. A temperature-controlled coaxial agitator works the desired temperature into the mixture, whether it’s hot or cold and hereby achieves the desired temperature considerably quicker than comparable systems. Special PTFE scrapers located at the outer stirrer reliably prevent product components from settling at the vessel wall. Thanks to integrated guiding plates, the stirrer develops a dual conveying effect, radially as well as tangentially. Due to the shearing of the counter rotation, the coaxial stirrer achieves a very effective homogenization and an efficient conveying effect, regardless of the viscosity of the mixture.

This conveying capacity enables the entire vessel content to be circulated up to twenty times per hour without interrupting the dispersing process. This continuous circulation therefore improves the mixing quality and, in individual cases, can shorten process times.

Powders and additives

The dispersing machine of the IKA® Master Plant MP produces a vacuum. It develops due to the high flow-through speed that is generated between the pumping and the dispersing zones. Powders, pastes or liquid additives are practically automatically sucked into the shearing field of the disperser via laterally attached feeding hoppers without an additional vacuum pump having to be connected. This allows for immediate wetting and distribution of the conveyed mixture. The adhesion of the powder to the vessel cover wall, which usually occurs when powders are added under vacuum above the vessel cover, does not occur. The penetration of dry powders into the vessel is avoided as well. Required additives can also be added to the mixing vessel directly where they are then premixed, tempered and circulated.

Cost-effective even with small quantities

Even in the cosmetics industry, cost-effectiveness is of utmost importance. The IKA® Master Plant MP once again proves to be very versatile and, depending on the quantity, offers two variably dimensioned circuits through which the mixture can circulate. One great feature the IKA® Master Plant MP has is the pumping and inline dispersing machine that is built directly into the vessel discharge. The cap nut, which is mounted at the inlet of the dispersing machine and whose agitator blades extend directly to the conical part of the vessel, creates powerful turbulences from below. Particularly when it comes to small quantities and high viscosities, this additional stirrer supports the homogenizing process and, in combination with the coaxial agitator, which is powered from above, ensures optimal mixing of the vessel content.
The first stage of the DBI is intended as a simple pumping stage. The products to be processed can recalculate through the bypass pipe without shearing. Two tangential return sockets can be separately controlled in order to activate either the large or small circulation circuit. If the smaller, lower return socket is activated, one can even produce batch sizes that are only 15% of the total volume. In addition, the first DBI stage can be used as a product discharge pump or as a CIP pump (cleaning in place). This makes an additional CIP pump unnecessary. The IKA® Master Plant MP offers great scalability and comes in nine different standard sizes with a useable volume of 10 to 4,000 liters. Per request, an explosion-proof version in accordance with the current ATEX or NEMA guidelines can also be delivered.

**Easy operation via a touch screen**

How the chameleon adapts to the demands of its surroundings is a mystery of nature. But when it comes to the IKA® Master Plant MP, one touch of the finger on the touch screen is enough to activate the desired mixing processes. The software is easy to understand and follows a clear logic. As the touch screen monitor is directly mounted to the mixing unit, one is able to have a clear overview of mixing times, recipes and other important parameters at all times. The integrated recipe management proves to be an unerring memory tool as it makes the work noticeably easier.

**An all-rounder without peripheral devices**

The IKA® Master Plant MP has proven itself in all areas of mixing technology such as the food and cosmetics industry as well as in pharmaceuticals and chemistry. One reason it is so popular is that it does not require any additional peripheral devices and therefore does not require any extra investment. So there are no unnecessarily incurred expenses for CIP or discharge pumps or dispersing or vacuum units. This enormous plus factor in terms of cost-effectiveness is only second to the almost limitless adaptability that the IKA® Master Plant MP demonstrates during everyday production. It therefore proves to be a true chameleon, in the cosmetics industry as well as other industries.