



System Solutions for the Cosmetic Industry

LÖDIGE - ALWAYS THE RIGHT MIX

Cosmetic Industry – Innovations for a More Beautiful Life



Product-specific process design ensures the highest international quality standards



Wellness - Emotions - Vitality

Beauty, success, acceptance – these are the intrinsic desires which lead enthusiastic customers around the world to reach for cosmetics. In 2009 customers spent well above 7 billion euros across shop counters in Germany alone for hair with volume, a bright white smile, a radiant complexion or other health and beauty aids.

One thing is clear: the cosmetics industry belongs to the chemical industry. However, it has its own separate, unique character. Because many of its products literally get under the customer's skin (or on it). Yet, the target group's direct, personal sense of well-being always plays the decisive role. Therefore, product quality is always first priority.

Lödige provides the solution

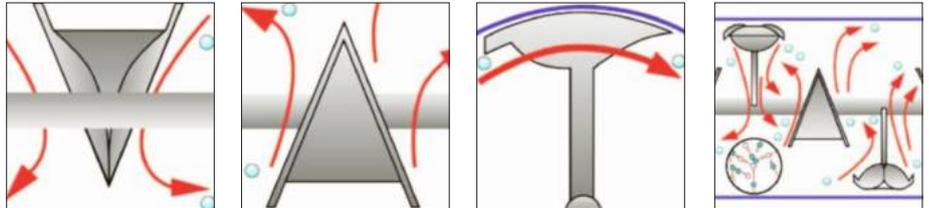
For this reason, cosmetic productions worldwide are subject to the absolute highest standards regarding safety, purity and reproducibility. And are thus, predestined for our systems. All Lödige solutions are developed, tested and implemented in accordance with the strict regulations for laboratories and production lines. Particularly those for the versatile applications used in the area of cosmetics manufacture. This means: our products and services are subject to the same internationally valid quality standards as those which apply to the cosmetics industry. These quality standards govern our entire specific processing know-how for mixing, drying and coating systems. They form the basis of the innovative Lödige system solutions for the cosmetic industry around the world. We bring decades of industry expertise to our close cooperation with representatives of major manufacturers of cosmetic products and thus make an innovative contribution to the latest cosmetic developments.

[You will find detailed descriptions of our systems in our brochures about machines and controls.](#)

Mixing of Solids in a Horizontal System

Detailed and ergonomic machine design of the horizontal Lödige Mixers provide compliance with all criteria relevant to product and application. This implies reliability to ensure constant and exact recipe of the products and reproducible quality.

The term of "mixing" is understood to be the specific combination of at least two products under the introduction of energy to form a mix with best possible homogeneous distribution. In horizontal Lödige mixers this is performed by the mechanically generated fluid bed: mixing tools rotate in special arrangement along the horizontal shaft inside a horizontal, cylindrical mixing drum. The size, number, positioning, geometric shape and peripheral speed of the mixing elements are coordinated to cause three dimensional, turbulent movement of the components.



Mode of operation of the Ploughshare® Mixer

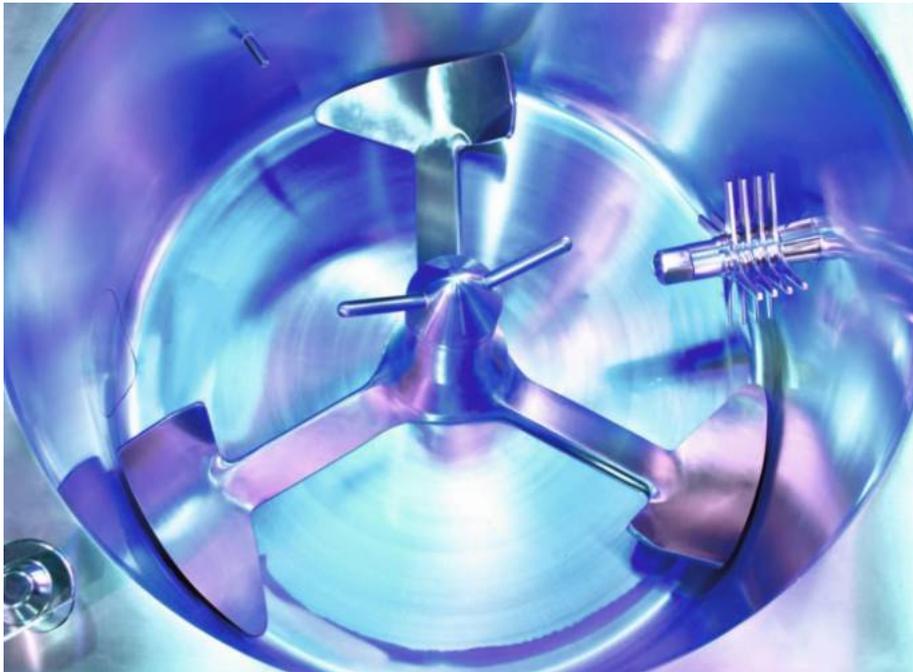


Ploughshare® Batch Mixer type FKM



Batch Mixer type Eco Line equipped with modified Ploughshare® shovels

Mixing of Solids in a Vertical System



Lödige Mixing Granulators of type MGT guarantee maximum availability for production in compliance with all GMP design requirements by providing high mixing precision, minimum batch times, easy cleaning and optimal discharge. Trouble-free operation for many years is generally the case.

The mixing shaft of the Mixing Granulator rotates in a smooth, cylindrical and vertical mixing vessel; the mixing product forms a so-called vortex given sufficient movement. This horizontal and vertical product movement assures rapid, intensive mixing. The vortex movement is specifically generated by the special form of the three-arm mixing impeller and its peripheral speed causing gentle treatment of the product.



MGT 1200 with swivelling lid



MGT with sieve downstream

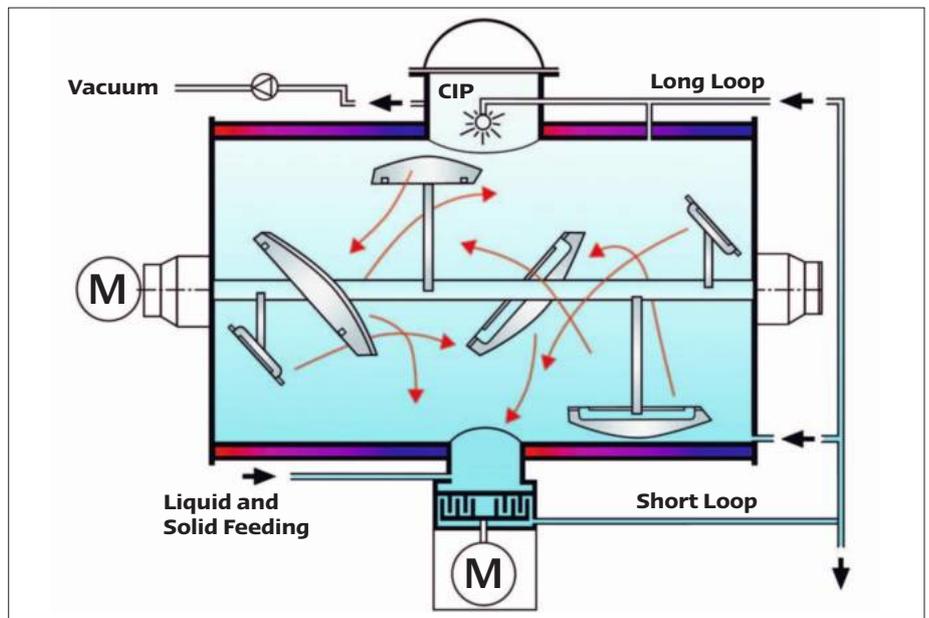
Mixing, Dispersing and Emulsifying of Solids in a Horizontal System

Lödige Dispersing Mixers LDM combine the horizontal mixing system with homogenizer technology in accordance with the rotor-stator principle to provide a new mixing and emulsifying system of high performance and efficiency. Furthermore, this concept is convincing due to its minimal construction height, specifically with regard to large batch sizes.

The creation of very fine similar sized drops and their homogeneous dispersion are important criteria in the emulsifying technology.

The production of semisolid and paste-like products has been mainly performed in vertical systems until now. However, these systems have certain disadvantages due to their form. Mixing performance, heat exchange via the heated/cooled jacket, deaeration, cleaning as well as the sometimes large construction height of vertical systems are not optimal and often influence negatively the efficiency of the process.

The Lödige Dispersing Mixer operates in accordance with the practice-proven mixing principle of the horizontal Lödige Ploughshare® Mixer. Having had a certain important machine features modified to adapt to the new application e.g. fitted with a high performance homogenizer in place of the normal mixer discharge, it is suitable for processing semisolid and paste-like products like cosmetic and pharmaceutical creams, tooth paste, etc. The homogenizer, flanged in the discharge, is a high-speed rotor-stator system (up to 3600 rpm) of well-known make. Further, the horizontal mixing shaft is fitted with scrapers which move along the mixer wall.



Functional principle of the LDM

The Dispersing Mixer is usually equipped with a heating/cooling jacket and is also suitable for vacuum operation for deaeration of the product. Due to the pumping capacity of the homogenizer, the product is reintroduced into the drum via a recirculation loop ensuring that all material passes through the rotor-stator system. The discharge of product is also carried out via the rotor-stator system.



Dispersing Mixer LDM



Lödige Research and Test Centre

The Lödige Research and Test Centre is equipped with the most modern machines for:

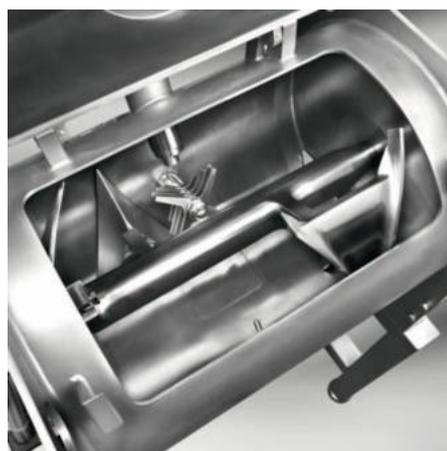
- **Mixing**
- **Kneading**
- **Dispersing**
- **Emulsifying**
- **Wet granulating**
- **Drying**
- **Heating / Cooling**
- **Coating**

to ensure testing under production conditions and in compliance with hygienic conditions.

The Lödige Test Centre with floor space of more than 400 m² provides trial capacity for more than 30 machines including a laboratory for physical analysis. A separate area is dedicated to cosmetic trials. All machines are suitable for WIP / CIP and suitable for small scale production.



Lödige Research and Test Centre



Ploughshare®-Mixer FM 130

- **Mixing**
- **Granulating**
- **Moistening**
- **Adding fat**
- **... and more**

Total volume 130 l
Working volume 90 l
Universal applications
High mixing quality
Heating / cooling jacket



Dispersing Mixer LDM 130

- **Mixing**
- **Dispersing**
- **Emulsifying**
- **Homogenizing**
- **Heating / Cooling**

Total volume 130 l
Working volume 90 l
Large heating surface
Minimal construction height
Extremely reduced process time



Mixing Granulator MGT 125

- **Mixing**
- **Granulating**
- **Wet granulating**
- **Drying**

Total volume 125 l
Working volume 90 l
Control of the point of granulation
Dust-free feeding
Rasp / sieve downstream



**Gebrüder Lödige
Maschinenbau GmbH**

P.O. Box 2050
33050 Paderborn

Elsener Straße 7-9
33102 Paderborn
Germany

Phone: +49 5251 309-0
Fax: +49 5251 309-123
E-mail: info@loedige.de

Contact numbers
Sales Department:
Phone: +49 5251 309-147
Customer Service:
Phone: +49 5251 309-222

www.loedige.de

Lödige supplies high-grade components, subsystems and systems for technical processing applications in a wide range of industries. We are specialized in the field of mixing, granulating, coating, drying and reaction. Our profound knowledge of processes, development and production enables us to contribute to the success of our partners throughout the world.

Lödige, which was founded in 1938, is a family-run business in its third generation now.

With the invention of the Ploughshare® Mixer, Lödige created a mixing unit that can cover a wide range of different processing tasks. This unit forms the basis for numerous innovations in the area of mixing and processing technology.

Industrial mixing and processing technology has been significantly influenced by Lödige and will continue to be so in the future.

Over 500 patents and more than 30,000 machines and systems demonstrate our experience with customer-oriented system solutions. Lödige operates with more than 300 employees worldwide and supports its customers with a network of subsidiaries, technical offices and agencies.