MIXING AND HOMOGENIZING
SOLUTIONS FOR EMULSIONS
AND SUSPENSIONS
In our headquarters in the midst of the fishing sea port in Bremerhaven, we develop our innovative and trend setting vacuum mixing and homogenizing plants for our renown global customers.

Cutting-edge process solutions - combined with an individual and client-specific concept and design - make us an innovative partner in the sector of special mixing and homogenising systems. These are distinguished primarily by individual solutions which are developed in close collaboration with our clients. Coupled with our reproducible processes, extremely low operating costs, low energy consumption, short production and cleaning times and the highest levels of productivity are further characteristics of our modern technology. This also means that our clients' investments are redeemed in a very short space of time.

Furthermore we do strongly engage in the maintenance, overhauling and modification of existing plants as well as third party plants.
We concentrate our attention on the development of customized processing plants for the fabrication of pourable and semi-solid emulsions and suspensions. Symex represents the next generation mixing plants - more elegant, more precise, and most importantly, more efficient.

**Area of Application**
- Cosmetics Industry
- Pharmaceutical Industry
- Chemical Industry
- Food Industry

**Strengths**
- Individual Machine-Concepts (Custom-Made)
- Procedural Know-How
- Pharma-Concept
- 3D-Engineering
- Batch Scale-Up
- Symex Pilot Plant Stations
- Training
- Schooling

**Core Processes in our Plants**
- Feeding of Raw Materials
- Mixing
- Homogenizing
- Tempering
- De-Aeration
- Cleaning

**Innovations in Symex vacum, mixing and homogenizing plants**
- Hot/Cold Emulsifying Process
- Pigment Grinding
- Fractional Batch Size Production with Identical Product Properties
- Reproducible Feeding and Induction of Raw Materials
- Fully Automated Cleaning: CIP-/SIP-Advanced
- Fully Automated Production Processes by Batch Controlled Systems
- Gentle Product Heating and Cooling (Delta and Time Rate Temperature Controlled)

**Typically Symex!**
- Significantly reduced thermal energy conversion
- Significantly reduced user requirements (manpower)
- Significantly reduced process times
- Significantly reduced amounts of cleaning agent and water required
- Lower investment costs through highly flexible system performance
- Maximised productivity

**Processing Plants with Power and Precision**

CMF 5000 + PM 3000
In-Line Co-Twister

CML 60 EX + PM 40 Ex (ATEX)
EVERYTHING IS POSSIBLE –
INDIVIDUALITY AT THE HIGHEST LEVEL

Due to continuous research, development and close cooperation with our customers, we established the foundation for our superior processing technologies.

Our plants

Vacuum, mixing and homogenizing plants

Lab scale of 4 to 30 liter batch capacity

Pilot plant scale of 30 to 200 liter batch capacity

Production scale up to 20,000 liter batch capacity

All plants can be supported by multiple phase vessels

All plant concepts can be altered with special operation solutions:

Emulsifying device, Exploitation safety concepts according to ATEX/NEC/CEC/NFPA

Fully automated cleaning and sterilization programs

Fully automated batch systems, raw material feeding systems, etc.

In-line homogenizers

Special plant and concepts for: emulsion systems, shampoo mixers, gels, emulsions, hair color plants, all-in-one plant concepts for the production of pigmented decorative cosmetics (pigment grinding), and plants for the production of all specialties:

Continuous process systems

SYMEX-PATENT:

CO-TWISTER-HOMOGENISATOR – the rotor-rotor principle with a dynamic stator

Independent and separate control over fluid flow rate and rate of shear imparted to the fluid as it passes through the homogenizer

Differential speed within the shear gap variable between 0-70 meters per second

Due to independent adjustments of flow rate and shearing rate, you have direct control on to the particle and droplet size, as well as the particle and droplet distribution.

Equipment characteristics of our customized plants:

Customer specific plant size of 4 to 20,000 liters

Electro-mechanical design up to 5,000 liters vessel

Pressure vessel certified according to PED or ASME

Vacuum confirmed up to -1000 mbar

Double jacket (isolated) for heating and cooling

Secondary circulation heating with a variable temperature control

External homogenizer with transfer line

Transfer line with "short loop" for fractional production quantities (20 %)

Homogenizer as co-twister or co-turbator (inter-external principle)

Homogenizing based on measured flow through rate and batch turn rate

Agitator as stationary baffle and blade design or as coaxial design

Specially designed agitators and homogenizers for extremely high viscosity

Reproducible powder and liquid induction under vacuum (below product level)

Hot / cold induction directly into shearing gap for producing emulsions

Validatable fully automated CIP/H cleaning without manual pre or post cleaning required

Phase vessels, equipped individually to customers specifications

Platforms individually fitted into your working environment

Transfer system with flow rate control

Exploitation safety concepts according to ATEX/NEC/CEC

Pharmadeign according to cGMP and GAMP with qualification
We develop and produce processing plants for the production of liquid, pourable and semi-solid emulsions and suspensions, whereas our operational possibilities are as varied as the final products of our customers.

**Cosmetics**
- Cremes (Caring and Barrier Cremes)
- Lotions (Body Lotion, etc.)
- Gel Styling Gels, Shower Gels, etc.
- Decorative Cosmetics
  - Make-up, Lipsticks, Liquid Eye Liner, etc.
- Sunscreen
- Sun Spray
- Hair Colours (Dyeing)
- Shampoos, Conditioners and Cubes
- Hairwaxes
- Hair Springs
- Shaving Cream
- Foundations (Make-up, Concealer, etc.)
- Shave Sticks, Hand-Shaving Detergents, etc.

**Pharmaceuticals**
- Toothpastes
- Pill Coatings
- Cough Syrup
- Syrups
- Ear Drops, Eye Drops (With Active Substances)
- Suppositories
- Active Substances
- Compounds

**Chemical Industry**
- Adhesives
- Colour
- Lacquer
- Lubricants
- Car Polishes
- Food
- Sauces
- Dressings
- Confectionery Fillings
- Toppings
- Dairy Products
Our quality speaks for itself: Our strongest accolades have been garnered on our high levels of technology by test results with our pilot plant running trials at our customer plants.

With these trials our customers can experience by themselves the quality levels that can be reached by their products with our plants. In most cases we exceed the expectations of our customers regarding the production speed and effectiveness.

The execution of test runs can be done on different plants:

- CML 4 laboratory mixer – batches of 1.5 to 4 liters
- CML 30 with Co-Twister – batches of 7 to 30 liters
- CML 200 + PM 160 – plant featuring all symex options and operational possibilities for batches of 40 to 200 liters
- In-line homogenisator, rotor-stator
- In-line homogenisator, rotor-rotor (Co-Twister)

For testing purposes all lab and pilot plant stations can be rented by our customers.

24-hour service, spare parts provision or on-site assistance: we are here for our clients every day. This ensures we can react in the shortest possible time and set out immediately to find the perfect solution for the individual requirements of our clients.

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CONTACT
Would you like to get some symex experience?
Why don’t you contact us and we will be happy to exceed your expectations on quality products.

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REFERENCES

ESTÉE LAUDER COMPANIES     L’ORÉAL     PROCTER & GAMBLE (P&G)     PARFUMS CHRISTIAN DIOR     CHANNEL
SCHWARZKOPF & HENKEL PRODUKTION     WIN COSMETIC     DR. THEISS NATUWAREN     KALINA     NYCOMED
MIBELLE AG COSMETICS     TARO PHARMACEUTICALS     SCHWAN STABILO COSMETICS     BAYER HEALTH CARE
LOHMANN THERAPY SYSTEMS     BCM     ELKALUB     KAO BRANDS     COLEP CCL     EVONIK GOLDSCHMIDT
SONAX     MANN & SCHRÖDER     LALEHAM     AVEDA     NIZHPHARM     BDF     EMBIL

DEMONSTRATING OUR ABILITIES!

INTELLIGENT SOLUTIONS IN THE SHORTEST TIME